

A Needs Assessment of the Pedestrian Mobility of the Elderly on Salt Spring Island, British  
Columbia

by


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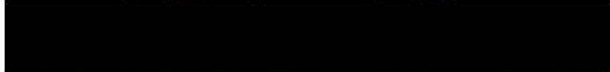
A Thesis in Partial Fulfillment of the  
Requirements for the Degree of

MASTER OF ARTS


In the Department of Geography

We accept this thesis as conforming  
to the required standard

  
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### ABSTRACT

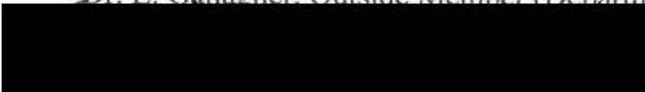
The purpose of this study was to assess the needs of elderly pedestrians residing on Salt Spring Island. The study used a micro-geographic approach to seniors and pedestrian issues together with the governance and administrative structure that exists for a rural unincorporated community. The needs assessment will examine factors such as the importance of walking and barriers encountered while walking as well as determine the role of government agencies in affecting and addressing pedestrian mobility. The study incorporated information from three sources: 1) interviews with the three principle agencies involved in pedestrian mobility; 2) a questionnaire that was distributed to seniors; and, 3) a map of the Ganges area to illustrate important pedestrian routes and the location of barriers. The research found that the needs of elderly pedestrians on SSI are not being met and that government agencies need to work together to develop strategies to address these needs.

Examiners:

  
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## TABLE OF CONTENTS

<b>Abstract</b>	ii
<b>Table of Contents</b>	iii
<b>List of Tables</b>	vi
<b>List of Figures</b>	vii
<b>Acknowledgments</b>	viii
<b>Chapter 1 – Introduction</b>	1
<b>Chapter 2 - The Importance of the Pedestrian Mobility of the Elderly</b>	6
Introduction	6
Why study the pedestrian mobility of the elderly?	7
The Seniors Boom	8
Independence	8
Reducing Falls Among Elderly Pedestrians	9
Aging in Place	11
Summary	12
Research Findings in Elderly Mobility: A Literature Review	12
Summary	20
<b>Chapter 3 - Research Objectives</b>	22
Introduction	22
Statement of the Problem	23
Research Objectives	24
Study Area	26
Methodology and Research Design	29
Statistical Methods	32
Ethical Considerations	33
Summary	33
<b>Chapter 4 – Agency Perspectives: Interviews with Government Representatives</b>	34
Introduction	34
Managerialism	36
Interviews with Government Agencies	37

Islands Trust	37
Capital Regional District (CRD)	41
Ministry of Transportation & Highways (MoTH)	43
Summary of Interviews	46
Summary	49
<b>Chapter 5 – Survey Results – Questionnaire</b>	<b>50</b>
Introduction	50
Characteristics of the Sample	50
Use of Mobility Aids	53
The Importance of Walking on Salt Spring Island	55
Barriers Encountered While Walking	58
Perception of Safety	60
Safety Concerns	63
Who is responsible for pedestrian routes?	67
General Comments	67
Summary	70
<b>Chapter 6 – Hazard Perception – Mapping Pedestrian Survey Results</b>	<b>71</b>
Presentation of Mapping Information	71
Walking routes identified in the Ganges area	72
Hazards and Barriers	74
Summary	78
<b>Chapter 7 – Summary and Discussion of Results</b>	<b>79</b>
Introduction	79
The Importance of Walking	80
Where do senior's normally walk?	83
Barriers to pedestrian mobility	84
Perceived safety of pedestrian routes	85
Specific location of unsafe streets	86
Government agency responsible for pedestrian routes	87
Role of government agencies in affecting pedestrian mobility	88
Policies that are in place to address elderly pedestrians	89
Are government agencies meeting the needs of elderly pedestrians?	90
What changes can be made to make things better?	90
<b>Chapter 8 – Conclusions</b>	<b>93</b>
Introduction	93
Assessing the Research Objectives	94
Summary	98

<b>Chapter 9 – Recommendations for Further Action and Research</b>	99
Introduction	99
Recommendations for Further Research	100
Recommendations for Further Action	101
Summary	103
<b>References</b>	104
<b>Appendix 1</b>	109
<b>Appendix 2</b>	110
<b>Appendix 3</b>	115
<b>Appendix 4</b>	116

**LIST OF TABLES**

Table 1	Age and Gender of Questionnaire Respondents	53
Table 2	Barriers Encountered While Walking	58
Table 3	Perception of Safety	60
Table 4	Chi-Square Analysis of Differences in Perception of Safety Between Males and Females	61
Table 5	Chi-square analysis of differences in perception of safety between males and females when values for 'very safe' & 'fairly safe' and 'not very safe' & 'not at all safe' are combined	63
Table 6	Unsafe Streets and Characteristics	65

## LIST OF FIGURES

Figure 1	Summary of Description of Research	20
Figure 2	Diagram Illustrating The Connection Between The Needs Of The Elderly, Government Agencies and The Micro-Environment	25
Figure 3	Map of Salt Spring Island	28
Figure 4	Diagram Indicating the Study Design and Methodology	31
Figure 5	Map Showing Existing and Proposed Uses in the Ganges Area	40
Figure 6	Agencies and Responsibilities for Pedestrian Issues on SSI	47
Figure 7	Use of Mobility Aids Among Seniors	54
Figure 8	Why Do Seniors Normally Walk?	56
Figure 9	Distance normally walked in a day (Males)	57
Figure 10	Distance normally walked in a day (Females)	57
Figure 11	What Agency is Responsible Pedestrian Issues?	67
Figure 12	Map Showing Streets in the Ganges Area	73
Figure 13	Map Showing Ganges Pedestrian Routes	76
Figure 14	Map Showing the Hazard Areas in Ganges	77

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# Chapter 1

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## INTRODUCTION

It is well established that Canada's population is aging and that this trend will have a profound impact on everyone. Geographical areas such as the Capital Regional District (CRD) of British Columbia will be particularly impacted as the number of seniors is expected to increase dramatically along with the rest of the population. For example, it is estimated that the CRD will grow by 34% between now and 2021 and for the same period the population over 45 years old will increase by 65% (Westland Resource Group, 1996). Due to this fact, the CRD must start to plan for a growing, changing and aging population not only because it is the fastest growing segment of the population but also because seniors require the greatest amount of care due to the physical changes and health deterioration they experience. The aging of our population has broad implications for policy makers, service providers, governments, family members and seniors themselves (Novak, 1997). Of the numerous areas of concern, I have determined that pedestrian mobility is of great importance to seniors and I have chosen Salt Spring Island (SSI) as the area to study this issue.

The ability of seniors to walk is a key factor in determining a person's independence and their ability to age in their own community. Enhancing their pedestrian mobility through

an enabling environment also increases the likelihood that seniors can maintain an independent lifestyle. Decreased health care spending together with the sheer number of seniors has resulted in a push to keep seniors in their own homes versus sending them to long term care facilities (Wister and Gutman, 1997; Gutman and Blackie, 1986; Dedyne, 1999). This is a more cost effective and efficient method of caring for seniors but it will result in more seniors, some in a diminishing state of health, living and walking in our communities. If we do not plan and maintain our walkways and create an enabling environment for elderly pedestrians, then more seniors will end up falling or becoming isolated from their community. In Chapter 2 of this study, I will elaborate on some of the reasons, which have been mentioned above, for studying the pedestrian mobility of the elderly. A review and evaluation of the relevant literature will also be undertaken in this chapter, pointing out the recent and more relevant findings in this area. The review of literature will draw from the areas of 1) urban geography, 2) planning and 3) health related disciplines.

This thesis takes a micro-geographic approach to examining the needs of elderly pedestrians on SSI within the governance structure of a rural area. Specific research objectives will be covered in Chapter 3. There will also be a description of the methodology and research design as well as the statistical method to be used in some analysis of the data. This chapter will also review the characteristics that led to SSI being selected as the study area. Some of these reasons include the following. The percentage of the population over 65 years of age is approximately 22%, which is higher than the Capital Regional District percentage of 18% (CRD Regional Planning Services, 1996). Unlike other areas that have a high percentage of seniors such as Oak Bay, which is an incorporated municipality, SSI is an

unincorporated, rural area. It is also, obviously, a rural island community with all of the unique challenges that go along with living on an island, such as, transportation, isolation and greater distances to services. SSI also has a town core area in which most of the businesses and services for the island are located. The town of Ganges will be the geographic focus of the study on SSI because this is where most of the services are and where most of the people live and therefore, it has the greatest concentration of elderly pedestrians.

One of the unique qualities of SSI is that there are several agencies directly or indirectly responsible for the pedestrian movement of seniors. Land use planning in BC is legislated primarily by the *Local Government Act (LGA)*, which gives powers to municipalities and regional districts to administer planning in their area (Hodge, 1989 and Municipal Affairs and Housing, 2000). The Islands Trust, which is a provincially legislated agency responsible for land use planning on the southern Gulf Islands, has all powers of a regional district as stipulated in the LGA as well as the additional legislated authority included in the *Islands Trust Act*. While the Islands Trust has the legislative authority to undertake activities such as regional growth strategies it doesn't have the administrative infrastructure to carry out such tasks. As a result, SSI overlaps in the geographic areas of the Capital Regional District (CRD) and the Islands Trust but because it is not a municipality it has to rely on provincial agencies such as the Ministry of Transportation and Highways to service the roads.

Chapters 5 and 6 will present the results from the data collected in the various formats. The three key agencies on SSI in terms of pedestrian mobility are the Islands Trust, Ministry of Transportation and Highways, and the CRD Building Inspection department. Chapter 4 will summarize the interviews conducted with representatives from the three key agencies. The concept of “managerialism” will also be introduced to provide a theoretical backdrop to the agency interviews. The primary method for collecting data from seniors for this study was through a questionnaire distributed to a number of seniors on the island. A map was also included to enable seniors to draw or describe the routes they most often use for walking as well as any unsafe features or barriers they encounter.

In Chapter 7, the results of the analysis will be discussed in terms of whether or not it meets the specific objectives stated for the study. The data will be analyzed and summarized for each of objectives set out in the study. Chapter 8 will review the goals and objectives of the study and develop conclusions based on the information collected.

Finally, the thesis will conclude with recommendations for action and for further study (Chapter 9.) It is important for a study to acknowledge limitations to the research and to suggest areas, which should be studied further. In order to ensure that the research is relevant, there will also be recommendations for action made to improve the pedestrian mobility of the elderly on SSI.

For the purpose of this study the term “senior” will refer to those people over the age of 65, unless otherwise stated. The reason for this is that most statistical and legal information, such as Statistics Canada Census data, refers to “seniors” as those persons over the age of 65 years.

## Chapter 2

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# THE IMPORTANCE OF THE PEDESTRIAN MOBILITY OF THE ELDERLY

### Introduction

Like any other segment of the population, people over 65 years of age are a diverse and varied group. However, there are issues, such as the frequently accompanying deterioration in health, that affect this age group more than others. This deterioration in health may include a decline in agility, strength and sensory perception leading to difficulty in getting around inside a dwelling and/or within the community. Another frequent concern that affects the elderly is reduced income. Retirement income in Canada among seniors is generally around 60% of the level of those in the 55-64 age group with about 1/3 of all seniors dependent on some form of government assistance (Hodge, 1990). Elderly women are the most likely to be affected by low-income (Hodge, 1990). There are also growing numbers of seniors who do not speak English or French as a first language (Driedger & Chappell, 1987).

These particular issues make this segment of our population unique and to some extent more vulnerable than any other segment of society. As a result, many people over 65

years old have particular needs and often the needs of the elderly are not taken into consideration. This is the case with the pedestrian needs of seniors. Despite all that we hear about our aging population, our communities continue to be designed and built for the young and able-bodied. This chapter will look at why it is important to study the needs of elderly pedestrians, reviewing topics such as the senior's boom, independence, reducing falls and aging in place. Finally, a review of relevant literature will be presented identifying key features of recent research. For example, more and more communities such as Portland and Regina are incorporating the needs of seniors into their Official Plans to ensure their unique needs area being addressed (City of Portland, 1998 and Mish and Rice, 1998).

### Why study the pedestrian mobility of the elderly?

The pedestrian mobility of the elderly is an important topic to study because of a number of factors. These factors include the dramatic increase in the number of seniors, the ability to remain independent and reducing falls, for example, the number of falls related injuries by seniors and the cost to the health care system. Transportation or mobility is seen as a vital link in the ability of seniors to move around in the community and to gain access to health, recreation and social services; and to remain independent (Smith, 1984; Hodge, 1998). Despite seniors' often repeated preference to stay in their own homes and communities for as long as possible, many encounter barriers or obstacles to maintaining an independent lifestyle. Seniors who are not able to access services or to just go out for a walk are at a much greater risk of social and geographic isolation within their community.

## The Seniors Boom

The sheer number and the expected increase of seniors in coming years will necessitate a review by those involved in community health issues of the pedestrian mobility of seniors and its impact on their independence and well being in their communities. Just as communities during the post World War II “baby boom” were planned for families, today’s communities must take into account the needs of the elderly. This will become even more important for areas like SSI that have such a high percentage of persons over 65 years of age.

Together with their increasing numbers, the pedestrian mobility of seniors is very important because for many elderly, walking is their preferred form of transportation (Smith, 1984). Many seniors walk for the social and health benefits that it brings but there are a significant number that walk to the store or the bank or to access recreation and social services. With more seniors living and walking in our communities, there needs to be an assessment of our communities as enabling environments for the elderly to move around in. This is particularly relevant for coastal British Columbia because the weather permits year round opportunities for walking outside.

## Independence

The vast majority of seniors are well enough to live an independent lifestyle and the primary objective of most seniors is to maintain their independence as long as possible, preferably in their own homes. Contrary to popular belief, less than 10% of seniors live in

institutions such as nursing homes or homes for the aged, however, with increasing age beyond 65 this proportion increases to 39% and most of these are women (Marshall and McPherson, 1994). Therefore, if you take the majority of the seniors' population living in private households, transportation and mobility problems arise with accessing community facilities and services they might need, and in finding a sense of comfort and ease in their own community.

Details about the physical environment can be crucial in promoting seniors' independence. For example, as seniors age they become primarily pedestrians in their local travel, and what we sometimes overlook become barriers for them. So, just having sidewalks, streetlights, and benches for resting is a first priority for elderly pedestrians (Hodge, 1998). The neighbourhood as an enabling environment is extremely important in affecting social relations, independence, recreation opportunities and the general quality of life of the elderly. Design considerations such as well maintained sidewalks, curb cuts and longer walk lights improve elderly mobility in the community. Accessibility to community facilities are also essential to improving the livability of neighbourhoods for the elderly (Orr, 1990).

### Reducing Falls Among Elderly Pedestrians

Recently, more attention is being paid to the detrimental impact that falls can have on the lives of the elderly. Studies such as *The STEPS Project: A Project to Reduce Falls in Public Places Among Seniors and Persons With Disabilities* (Gallagher and Scott, 1995) looked at the causes and prevention of slips, trips and falls among primarily older people and

people with physical disabilities. This study confirms the debilitating impact that falls can have on the elderly.

For the elderly a fall is a serious unexpected incident that can cause injury, disability and/or death...in addition, fear of falling and loss of confidence contribute to decreased mobility, increased isolation and dependency (p. 9).

Not only do falls exact a personal impact on the lives of the elderly but it is estimated that health and hospitalization costs as a result of falls in the CRD alone would be in the range of tens of millions of dollars (Gallagher and Scott, 1995; Scott, 2000).

*The STEPS Project* explains that falls are a result of a complex interaction of intrinsic factors (ie. personal health) and extrinsic factors (ie. the physical environment) (Gallagher and Scott, 1995). The study also identified where the elderly are most likely to fall. The hazards typically identified as causing falls were often located on walking routes between seniors residences and shopping centers, recreation centers and health clinics and the most frequently identified sites for falls were sidewalks, crosswalks, curbs, roads and walkways. *The Steps Project* highlights the need for municipalities and building owners to repair uneven and slippery surfaces and other walkways focusing on routes used by seniors and persons with disabilities. The study further recommends the suggested action of incorporating safe pedestrian routes in all local area plans while establishing priority corridors for seniors and persons with disabilities.

## Aging in Place

The current trend for housing seniors is to encourage “aging in place” or the de-institutionalization of the elderly. Aging in place describes the option to age in one’s home and in this case home does not necessarily imply an owner-occupied single detached dwelling, however, it is usually considered part of the community (Wister and Gutman, 1997). The concept of aging in place has two dimensions. At one level, it reflects a belief in the value of independence and the right of seniors to remain in their own homes. At another level, aging in place is concerned with the specific and tangible ways of assisting the elderly to do so. This necessitates the development and co-ordination of programs and services to meet the needs of the elderly that age in place (Badiuk, 1990).

With the trend away from institutions and nursing homes, and limits to our health care spending, more seniors with disabilities and chronic illnesses are living in our communities (Wister and Gutman, 1997). However, our physical environments continue to be designed with the younger and able-bodied individual in mind. In order for aging in place to be successful, we need to create environments that are enabling or barrier-free for the elderly, which includes improving or facilitating their pedestrian mobility. Hand in hand with the familiar home goes familiarity with community surroundings. Knowing the locations and routes to get to the store, bank, clinic, and bus stop means that seniors can reduce the chances that they will experience a fall, the fear of getting lost or the anxiety of assault. This will assist the elderly in remaining independent and improve their likelihood of aging in place.

## Summary

It is clear that seniors' pedestrian mobility is a community health and planning concern involving a wide network of professional and organizations. The following section will review relevant literature that is also indicative of the diversity of the subject area. These papers tend to cut across the disciplinary spectrum from geography to gerontology and their setting can range from an entire country to an individual's home.

### Research Findings in Elderly Mobility: A Literature Review

The problems facing pedestrians have received extensive attention from the British through a series of reports. Two publications produced simultaneously, *Pedestrians: An Action Guide to your Neighbourhood Problems* and *What's Wrong with Walking?* (National Consumer Council, 1987), highlighted the problems and concerns with walking in Britain. The action guide begins with the statement:

Conditions for pedestrians in Britain are a national disgrace. Every year about three million people trip or fall on damaged pavements; an even larger number slip on wet leaves, snow or ice (p. 1).

Although these publications do not focus on elderly pedestrians, they do acknowledge that the people most affected by the poor conditions of the sidewalks are seniors. The action guide provides useful information ranging from mounting a local campaign to improve conditions for pedestrians with tips on how to conduct a survey, how to lobby city councils and what groups can be contacted for help. *What's Wrong with Walking?* (1987) reports on the findings from surveys conducted into the problems facing pedestrians. Problems, such as, narrow and uneven pavements, high curbs, litter and improperly placed pedestrian crossings are noted in their findings.

This same group produced a follow-up in 1995 to the above publications. This publication, *Problems for Pedestrians: A Consumer View of the Pedestrian Environment* reports the results from a survey taken earlier in the year. The report is very thorough and goes so far as to break down opinions on, such issues as, litter by age group, gender, social group, region and whether the area is urban or rural. The report concludes that while there have been general improvements to the condition of pavements and sidewalks especially with regard to litter, there still needs to be a higher priority given to the needs of pedestrians.

Another study to come out of Britain is even more relevant to the pedestrian mobility of the elderly. The study, *An Ergonomic Study of Pedestrian Areas for Disabled People* (Leake, et al, 1991), is aimed at disabled people and the elderly. The objectives of the study were to provide a guide for design and maintenance of footways and pedestrianized areas. Information was gathered through a literature review and discussion with user groups and service providers, surveys and interviews with pedestrians, and observations of the difficulties of movement in pedestrianized areas experienced by the disabled, the elderly and the able-bodied. This study is very comprehensive with photographs of “best and worst” pavements (sidewalks), maps showing the pedestrian areas studied, thorough reporting of the survey results and a summary of other organizations to contact for help in this area. The study identifies eleven areas of concern to disabled people and the elderly:

parking, public transport access, crossing roads, movement distance, kerbs (sic), surface conditions, steps and stairs, ramps, obstructions, lack of information and toilets (p. 51).

The authors also conclude that designers and engineers need to be more aware of the special standards required for elderly pedestrians.

More and more studies are focusing on very specific aspects of the spatial mobility of the elderly that are also relevant to the pedestrian needs of seniors. For example, Smiths' studies on the shopping patterns of the elderly in central Canada are very applicable in terms of the relation to their pedestrian mobility (Smith, 1984 & 1991). Smith notes that the spatial mobility of older people is particularly subject to a variety of constraints including: limited financial resources; lack of private transportation and, in some cases, reduced physical capabilities (1984). He also finds that the inner urban elderly walk more often due likely to not having a car and proximity to shopping alternatives in the downtown as opposed to the suburban elderly. In terms of the pedestrian mobility of the elderly, both this study and similar work done in 1991 find that walking was the most frequently used transport mode on at least an occasional basis.

Another research focus is the increasing attention given to the area of elderly pedestrians and their ability to use intersections safely. An observational study at a busy Los Angeles intersection found that older people were at risk of injury because the timing of pedestrian signals was based on a normal walking speed of 1.22 meters per second whereas the walking speed of older pedestrians was timed at 0.86 meters per second (Hoxie and Rubenstein, 1994). A similar study identified visual impairments experienced by older people resulting in the inability to distinguish between the "Walk" and "Don't Walk" signals and to determine the boundary between the curb and the street (Langlois, et al. 1997). Both

of these projects concluded that many older people in the community seem to have lost some of their ability to live independently because of their inability to walk at an adequate rate to cross an intersection.

Natural features have also been identified as a factor in affecting the mobility of the elderly, especially for those seniors with certain physical disabilities, such as a heart condition (Basu, 1979). In this study the steep topography of an area is shown to be as a significant factor limiting mobility. Topography was also one of the key variables in selecting preferred routes for pedestrians in the *Portland Pedestrian Master Plan and Pedestrian Design Guide* (City of Portland, 1998).

Hodge makes the case that planners have an important role to play in shaping the public, built environment for seniors. As he suggests, next to health care professionals, planners can do the most to promote the ability of seniors to maintain their independence (1998). In the same article, he goes on to say that as seniors age, they become primarily pedestrians in their travels, and what the able-bodied are able to overlook become barriers to the elderly. He suggests that just having sidewalks in good repair and well-placed benches go a long way to assisting senior's independence.

An example of city planning giving attention to pedestrian needs is the recently completed *Portland Pedestrian Master Plan and Pedestrian Design Guide* (1998). This plan, which is legislation incorporated into the city of Portland's Master Plan, is a policy document that encourages and provides a foundation for pedestrian travel in the city. This document is not

aimed specifically at seniors but it does mention the elderly as a group that has specific needs and requires attention. It provides information on designing pedestrian routes, identifying priorities for which routes should be built or upgraded first, details on the costs of constructing the various routes and how to maintain them. The plan is also full of maps showing the different areas of Portland, the various levels of pedestrian corridors and how they will be phased into construction, as well as information on pedestrian/automobile crash sites and details of a sidewalk inventory. This plan could serve as a useful guide in identifying priority routes for elderly pedestrians together with information on topography, where sidewalks are located and the various services in the area.

Of particular interest to this review is the work that planners are doing in Regina, Saskatchewan in the area of “senior-friendly neighbourhoods” (Mish and Rice, 1998). This concept involves working with seniors to coordinate “hard services” like sidewalks and housing with “soft services” such as home support and local health services in areas that have a concentration of elderly. To improve seniors’ mobility, the program includes installing audible lights at crosswalks, priority snow clearance near seniors’ housing complexes, and improving pedestrian accessibility to sidewalks, roads, and buildings through ramping most curb cuts, for example.

A similar type of community planning program is the “wellness walkways” project that is planned for the East Vancouver neighbourhood of Mount Pleasant (Ministry of Municipal Affairs, 1998). The project involves a partnership between the community and the city that will demonstrate how public space can contribute to community health and better meet the needs of

seniors and people with disabilities. The goals of the wellness walkways proposal are to: eliminate physical barriers; provide opportunities for social interaction; maintain and improve safety; and beautify the neighbourhood. Basic street improvements, such as sidewalks, curbs and street trees will be funded through local improvement processes. Accessibility and safety improvements, such as curb drops, crosswalks and audible traffic signals may be funded through existing city programs or through community partnerships.

Falls or fear of falling among the elderly are a serious problem, and as mentioned earlier with the increase in the number of elderly and those living in our communities, one that deserves further attention and study. There have been several studies that have focused on the indoor environment of the elderly to identify safety hazards that may increase the risk of a fall. Previous studies on the environment in senior's homes have identified several hazards. These include uneven or slippery floor surfaces, tripping obstacles, inadequate lighting, poorly designed or maintained stairs without handrails and inappropriate furniture as examples of increasing the risk of falling, tripping or slipping for older people (Carter, et al. 1997; Gallagher and Scott, 1995). While these studies do not assess the public walking environment, they do help to assess the barriers that senior's face in maintaining their mobility.

As a result of the personal and societal consequences of falls among the elderly, *The Steps Project* (Gallagher and Scott, 1995) was initiated. It undertook not only to identify where and why seniors in the CRD were falling but also to come up with recommendations to eliminate hazards and to promote risk management. The study examined the location of falls,

the type of injury (if any) sustained, the type of surface material and possible reasons for falling as well as age, sex and disability of the individual. Most falls were a result of personal and environmental factors, such as a chronic illness together with poor sidewalk conditions. Falls in public places is obviously an extremely important area when reviewing seniors' pedestrian mobility. Additional studies on the location and routes that elderly pedestrians use would complement this extensive and informative research on falls. The same study estimates that one in every three non-institutionalized seniors will experience at least one fall yearly, and 50% of this total will sustain a significant injury. Falls not only have a personal impact on the elderly but the cost of hospitalization and health care as a result of injuries due to a fall, a figure which for Canada is in the hundreds of million of dollars, impacts all of us.

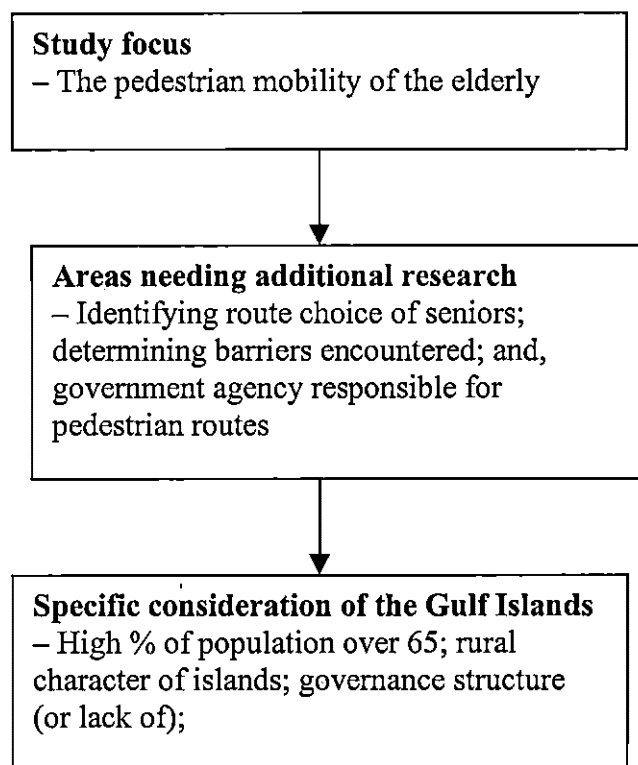
Improving pedestrian mobility will not only enable seniors to be more independent and reduce falls but it will also save us money. More and more articles are referring to the impending health care crisis which some feel (on the demand side) is largely due to the increasing number of seniors (Watts, 1998; Wake, 1998). Improving seniors' ability to walk in their community through well-planned and maintained walkways would allow for greater independence and reduce falls. This in turn would have the positive affect of reducing the amount of money spent on health care as a result of an injury due to a fall.

As a recent national health survey demonstrated, the number of hip fractures in a region, which is a common consequence of a senior falling, is a factor in determining the overall community health of an area (Marshall, 2000). The survey ranked the Capital Health Region (CHR) third best in the country in a comprehensive survey of major communities.

The CHR had the second lowest rate of hip fractures and a program of spray painting dangerous cracks and potholes that cannot be immediately repaired was seen as a large contributor to this success (Hunter, 2000).

As a region, the Gulf Islands have been the subject of a number of surveys related to seniors. However, these studies have focused on assessing the need for seniors' housing on a particular island (Gabriola Senior's Housing Society, 1995; Heron Rocks Friendship Centre Society, 1990; Salt Spring Seniors for Seniors, 1993). While they are not directly related to pedestrian issues, these studies do recognize the unique nature of the islands and the problem of providing services to elderly residents. For example, the Heron Rocks Friendship Centre Society report *Seniors Housing in Island Communities* notes that the needs of seniors living on an island are unique because of their relative remoteness and rural nature.

Figure 1 below illustrates the relationship between this research proposal and the objectives of the study together with the specific needs of seniors on Salt Spring Island.



**Figure 1 – Summary of Description of Research**

### Summary

A review of the literature reveals that there are an increasing number of studies focusing on pedestrians and issues specific to seniors are being given more attention. It is clear that the study of the pedestrian mobility of the elderly is an important topic with reasons ranging from enabling independence, reducing falls and better enabling seniors to age in their community on the one hand and on the other reducing overall health care costs. There has

been extensive research into various aspects of this topic, however, there are also gaps in the research and additional studies are necessary to study further the needs of elderly pedestrians. The next chapter will outline the objectives for a study to research the pedestrian needs of the elderly on SSI in an attempt to further research in this area.

## Chapter 3

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### RESEARCH OBJECTIVES

#### Introduction

The review of the relevant literature showed that there is a need for further study into the pedestrian mobility of the elderly. Previous research has investigated falls and identified barriers that seniors encounter (Gallagher and Scott, 1995 and 1997); looked at the shopping patterns and spatial mobility of the elderly (Smith, 1991 and 1984); reviewed the concerns of land use planners (Hodge, 1988, 1990 and 1998); and examined the ability of seniors to safely use crossing intersections (Hoxie and Rubenstein, 1994; Langlois, et al. 1997). However, no attempt has been made to conduct a needs based survey of elderly pedestrians to identify the routes they walk together with determining barriers encountered, conditions of the walkway, and the government agency responsible for pedestrian routes. This research seeks to fill that gap by using SSI and its unique environment as a study area.

This chapter will begin with a statement of the research problem and why is it important for research to be conducted in this area. I'll continue with a statement of the

objectives concerning the needs of elderly pedestrians on SSI. A review of the methodology, research design and statistical method will conclude the chapter.

### Statement of the Problem

Salt Spring Island has a high percentage of seniors living in a rural environment. In 1996, the percentage of people over 65 living on SSI was about 22% while the provincial figure was about 12% (BC Statistics, 1996). SSI is not incorporated as a municipality and therefore, a number of provincial government agencies as well as the CRD are responsible for pedestrian mobility on the island. All areas of BC are included in a “regional district” such as the Capital Regional District. Within a regional district there may be municipalities, which would include settlements incorporated as cities, towns or villages. There are also areas which are unincorporated that would not have a town council and municipal staff for support. These areas have to rely more heavily on their regional district electoral representative as well as provincial government for services and support.

SSI falls in the category of an unincorporated area but it is also unusual because it is in the Islands Trust area which is specifically mandated under the *Islands Trust Act* to “preserve and protect the unique amenities” of the southern Gulf Islands (Government of BC, 1996). There are few formal, public walkways, such as sidewalks, on the island, which makes it more difficult for seniors to get around as pedestrians. With a number of government agencies (Figure 2) responsible for elderly pedestrians, the process of maintaining, developing and coordinating a comprehensive pedestrian network for seniors is more difficult.

## Research Objectives

The purpose of the study will be to assess the needs of elderly pedestrians on SSI. An overall objective of the research promotes a healthier community for seniors on SSI through an enabling pedestrian environment. In order to do this, the research will transcend traditional academic and occupational boundaries such as health care and land use planning

Specific research objectives were to determine the following:

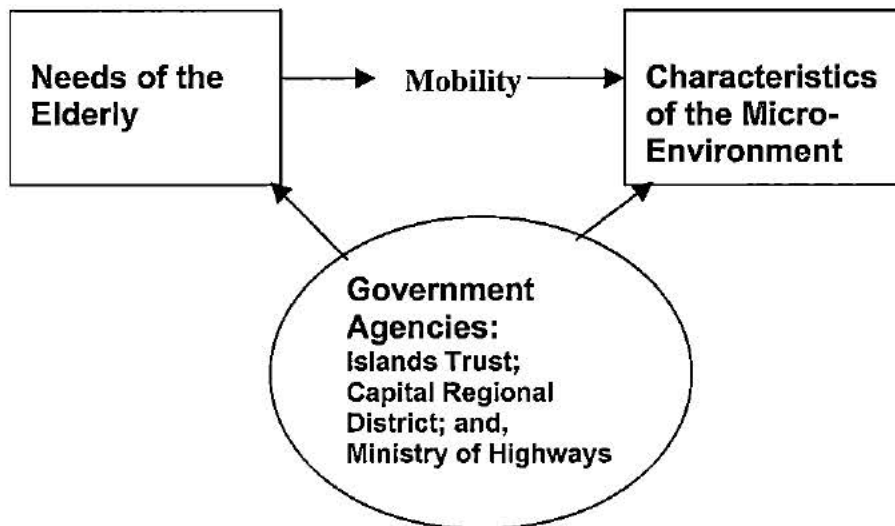
- The importance of walking as a mode of transportation for seniors on SSI;
- Where seniors normally walk (i.e. on the side of the road, sidewalk, path, etc.);
- What barriers such as, potholes, uneven surfaces, poor lighting, are encountered when walking and if this obstruction resulted in a fall;
- The perceived safety of the pedestrian routes and the specific location of unsafe streets;
- The government agency responsible for pedestrian routes on the island;
- What changes can be made to make the situation better.

The research will also determine the role of government agencies as follows:

- The role they have in affecting pedestrian mobility;
- The policies that are in place to address elderly pedestrians; and,
- Whether or not the government agencies are meeting the needs of elderly pedestrians.

The study will incorporate information from three sources: 1) from interviews with the three principal agencies involved in pedestrian mobility; 2) from a questionnaire that was distributed to seniors; and, 3) from a map of the Ganges area to illustrate important pedestrian routes as well as the location of barriers.

Figure 2 represents connection among the three foci of the study as well as the importance of the micro-environment meeting the needs of the elderly in affecting their mobility.



**Figure 2 – Diagram illustrating the connection between the needs of the elderly, government agencies and the micro-environment.**

## Study Area

SSI presents a unique environment for a case study of elderly mobility for several reasons. SSI has a very high percentage of people over the age of 65 representing about 22% of the total population in 1996 (BC Statistics, 1996). This would represent about 2,000 people living on the island. SSI is obviously, an island, primarily rural and is considered an unincorporated area. This results in several different government agencies responsible for different aspects of pedestrian activities in public places on the island. The government agencies include the Islands Trust, which functions as a local government; the CRD, whose primary function is building inspection services; and, the Ministry of Transportation and Highways representing the province.

This study will focus on the town of Ganges (Figure 3) because the highest concentration of pedestrian activity of seniors takes place in and around this area. Ganges is the commercial, industrial and institutional centre of SSI. It also has the highest density of residents, which includes seniors' housing facilities and multi-family residences. Ganges is also important because of the high number of tourists that visit the town, which would for example, affect traffic volumes and sidewalk use.

The large number of seniors and the rural nature of the island together with the government agencies involved in serving elderly pedestrians, represents an immediate and growing challenge to providing a safe, functional and pleasant walking experience for

seniors. One of the recommendations of *The STEPS Project* (1995) was that clear mechanisms should be in place for people to report hazards. For example, a government agency could designate and train one staff member to take information on reports of pedestrian hazards. This is especially important for unincorporated areas like SSI.

In terms of mobility, living in a rural area is generally recognized as being a major barrier to independent living (Keating, 1991; Matthews and Vanden, 1986). A report by the National Advisory Council of Aging (NACA), titled *Understanding Seniors' Independence* (1989), asserts that the transportation problems of seniors living in small urban and rural areas are especially severe. Although their 'suggestions for action' are primarily directed at public transportation and personal automobile use, they do recommend further research into the area of senior pedestrians because barriers to mobility can potentially be very serious handicaps to the senior's independence.

The rural nature of SSI is also a limiting factor for this research. It is known that SSI has a small hospital and limited number of medical practitioners and specialists. For example, the medical services on SSI are not nearly as diverse as in Victoria. The limited health services on the island may prevent some seniors with more serious health problems from living on the island. Also, it is known that there are few sidewalks or walkways on the island, which may also affect the decision of some seniors who have a mobility restriction or a limiting health condition in their choice to live on Salt Spring. Therefore, I'm going to make the assumption that the seniors living on SSI are generally healthier and more able-bodied than seniors living in surrounding urban areas.

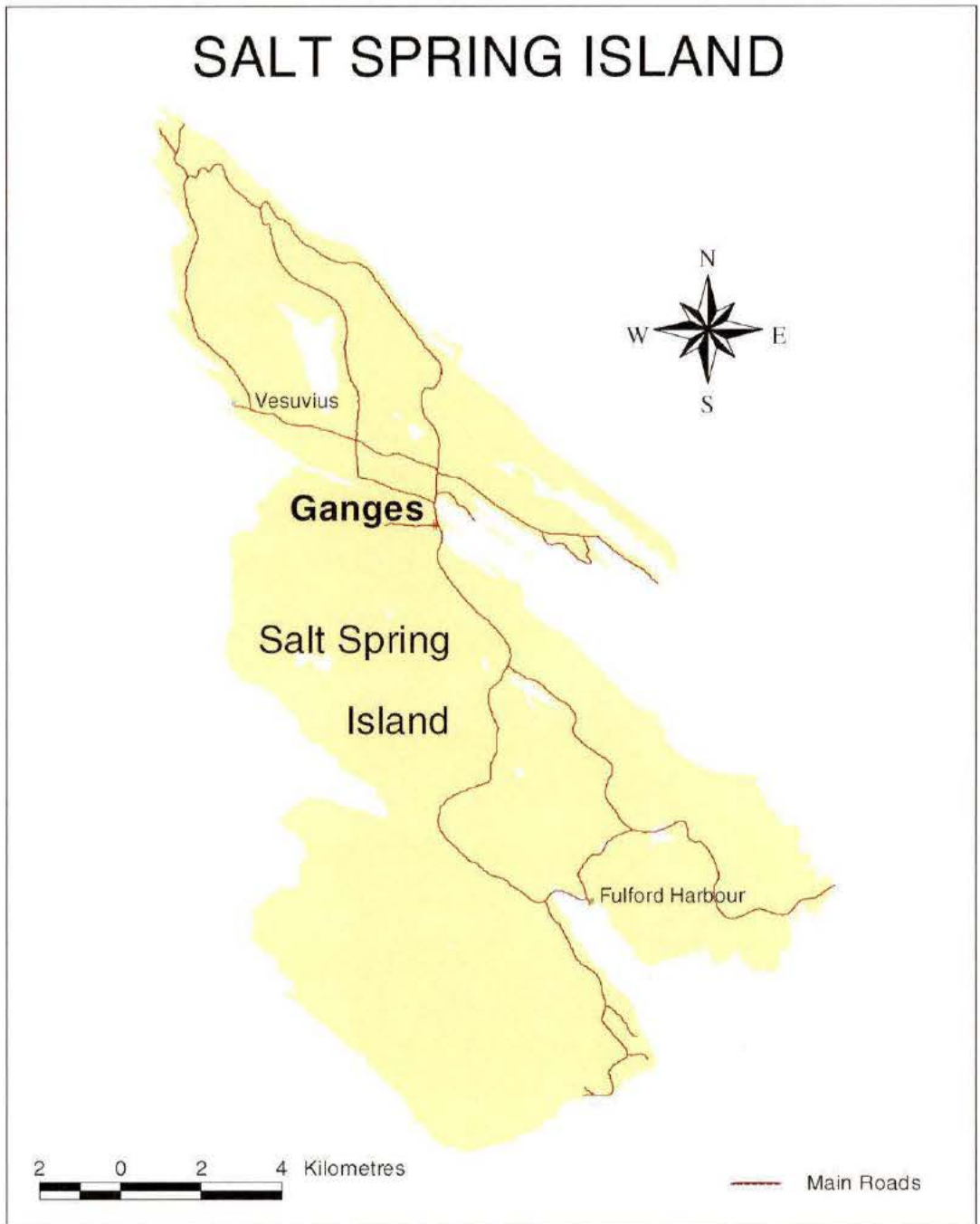


Figure 3 – Map of Salt Spring Island

## Methodology and Research Design

For the purpose of this research, “mobility” is defined as, ‘the ability to move about freely in the community without barriers’. The primary objective of the research is to analyze the pedestrian or walking mobility of seniors focusing specifically on public space. Individuals 65 years old and older were the target research group.

One of the challenges that face an unincorporated area such as SSI is that there isn’t a municipal government or one government agency that is responsible for pedestrian activities (Figure 2). As a result, interviews were conducted with representatives of the three principal government agencies that affect the walking habits of seniors, Islands Trust, CRD and the Ministry of Transportation and Highways. The purpose of the interviews was to determine better their role and understanding of pedestrian activities on the island. The interviews also assisted in the design and focus of the questionnaire in terms of what questions to ask and what information would be useful.

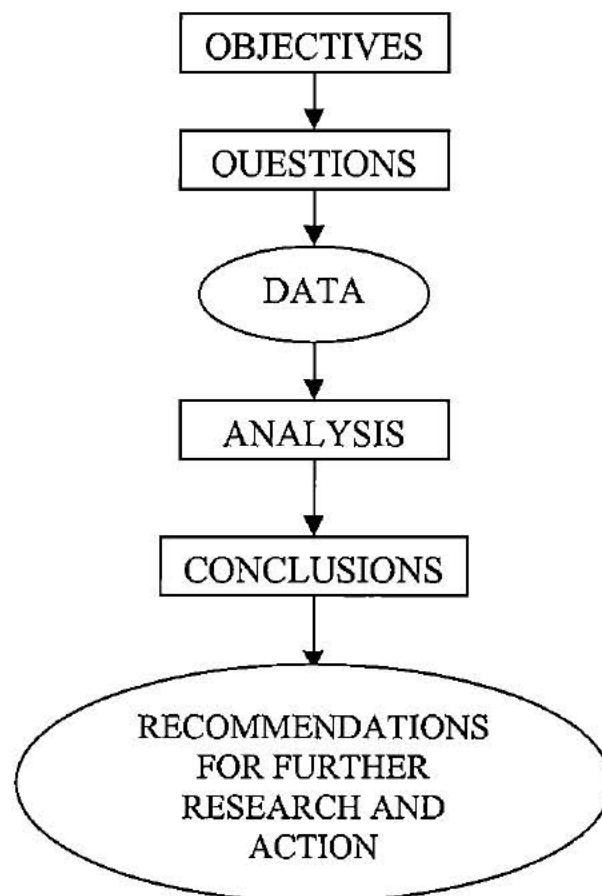
A questionnaire was designed to collect information about the pedestrian mobility of the elderly (Appendix 1). It combines open- and close-ended questions to allow for some anecdotal comments to understand better the issue. The study includes questions about age, gender, estimated distance traveled, where they walked, any barriers or hazards encountered, did they trip or fall and the government agency responsible for pedestrians.

Another component of the study was the collection of micro-geographic information. Respondents illustrating often-used pedestrian routes on a map of the Ganges area achieved this. Seniors can also indicate barriers and other features on the map. This data provided spatial choice information on important pedestrian routes in the Ganges area and the specific location of barriers. The researcher also completed observations through walking different routes together and documenting issues described in the maps and questionnaires.

Before I started the research, I contacted representatives from a senior's organization, the Salt Spring Seniors for Seniors Society. I met with their Wellness Coordinator and the president of the organization to review a draft of the questionnaire to discuss if they were interested in assisting with the study. Both were receptive to the research objectives and agreed to provide assistance. Questionnaires and maps were distributed to Society members at a number of lunchtime gatherings over the course of a month. Seniors were asked to complete the questionnaire while at the centre and both the Wellness Coordinator and the president were available to answer questions and provide assistance.

The data from the questionnaires, interviews and maps were analyzed and interpreted to describe and evaluate the research objectives that have been stated earlier in this section. Generally the research objectives will determine the needs and challenges facing elderly pedestrians and whether or not the government agencies are meeting those needs. Information on the location of often used walking routes and hazards or barriers in the Ganges area is illustrated in map form.

This information will be presented to the Salt Spring Seniors for Seniors organization, as well as the government agencies with recommendations for further research and recommendations for action. Although implementing recommendations from research is difficult, I think it is very important for research to try to make, or at least suggest, improvements. It is anticipated that the recommendations will range from establishing a Seniors Advisory Committee to working with the various levels of government to initiating a strategic pedestrian plan for the Ganges area. Figure 4 presents a flow chart of the study beginning with formulating objectives through to data collection and finally to recommending further action or research.



**Figure 4 – Diagram indicating the study design and methodology**

## Statistical Methods

In order to understand better the statistical significance of the data, chi-square statistical analysis will be used. Chi-square is a frequently used non-parametric test of statistical significance in social science. It is especially appropriate where sample sizes are small and normal parametric models are not applicable. Chi-square analysis is based on the null hypothesis which is the assumption that there is no relationship between the two variables in the total population (Babbie, 1989). The chi-square value is the overall discrepancy between the distribution of the actual and the expected variables if the two were unrelated to one another. In other words, are observed frequency distributions sufficiently different from a random arrangement?

Chi-square was chosen as the statistical method because the responses to the questionnaire involve a nominal data set. Also, the intent of the analysis is not to prove a hypothesis but rather to attempt to generate a hypothesis and therefore it is assumed that chi-square is a satisfactory method in this regard.

In the questionnaire, seniors were asked how safe they felt while walking in their community ranging from very safe to not at all safe, i.e., their perception of safety while walking. Chi-square analysis was used to determine the differences in the perception of safety between males and females based on these responses.

### Ethical Considerations

In order to ensure that ethical standards and university policy have been met, the University of Victoria Human Research Ethics Committee reviewed the research proposal. The Committee granted approval of the research and a copy of the Certificate of Approval is attached as Appendix 3.

### Summary

This study sought to fill a gap and add to the research in the area of elderly pedestrians' mobility by reviewing the needs of seniors on SSI. It is hoped that the study findings will lead to change on the island in order for seniors to lead safe, active and healthy lives. The first step of the research was to interview three representatives from government agencies responsible for various aspects of the public built environment on Salt Spring. This will provide a context for understanding the issue.

## Chapter 4

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# AGENCY PERSPECTIVES: INTERVIEWS WITH GOVERNMENT REPRESENTATIVES

### Introduction

It has already been noted that SSI is unusual because it is a rural, unincorporated area with a high percentage of the population over 65. As an unincorporated area, there is not one central government agency that is responsible for planning and servicing the island. As a result, a number of government agencies can affect the pedestrian mobility of seniors on the island. Therefore this situation prompts the question, “what is the role of the government agencies when it comes to addressing the needs of elderly pedestrians on SSI?” For example, do they consider SSI to be a unique situation? Do they develop pro-active policies to address the changing composition of the population?

One of the objectives of this study is to determine which government agency is responsible for the safe movement of pedestrians, or if more than one agency is responsible do they interact or do they function independently, to meet the needs of seniors. Specific questions were asked in the questionnaire to determine seniors’ knowledge of the role of these agencies but just as important is what is the role and perception of the government

representatives in terms of the pedestrian needs of the elderly on Salt Spring. While it may be possible for seniors to help themselves, in reality it is more likely that they will have to rely on a government agency for help.

It can be assumed that because of SSI's rural environment and the high percentage of seniors residing on the island, that these factors would be taken into consideration when developing policies and programs. Given these particular factors and the absence of a local municipal government, one or more of the government agencies should give special attention to the elderly and their unique needs.

Interviews were conducted with key representatives from the three principal government agencies who are directly or in-directly, responsible for mobility on SSI. These agencies include the Islands Trust, CRD and, Ministry of Transportation and Highways. Each of these agencies has a different mandate and is responsible for various aspects of pedestrian mobility. A standard set of questions was asked of each agency representative; however, the interviews were kept open to permit some latitude and further explanation of comments. The list of questions is attached as Appendix 1.

Understanding how government agencies manage their area of responsibility and respond to client needs is an important area of contemporary social science. This study focuses on the key concept of "managerialism" (Cater and Jones, 1989). This theory asserts that key bureaucrats play an integral role in regulating access to resources such as, government programs. The interviews with agency managers will be summarized with the

concept of managerialism providing a contextual framework for understanding the public response system to mobility of the elderly.

### Managerialism

One of the objectives of this study is to determine if government policy is keeping pace with the changing population, increasing number of seniors and their special needs on SSI. For example, are the government representatives monitoring demographic trends to ensure that their policies and services are consistent with needs of the island? Are the concerns of elderly pedestrians given consideration at the different agencies? Are the different agencies looking for innovative solutions to address the concerns of elderly pedestrians? One concept that tries to explain the general role and behavior of public officials as gatekeepers to a resource is *managerialism*.

The concept of “managerialism” is most often applied to public officials who regulate access to a resource such as public housing stock. Managerialism seeks to explain the unequal distribution of life chances by reference to those agencies whose responsibility and power it is to undertake that distribution (Cater & Jones, 1989). The key public officials, referred to as “urban managers”, are those who make decisions that influence the internal structure of urban areas and the lives of their inhabitants (Johnson, et al, 1996). While, this theory is most often applied to access to public housing, there is merit in extending its use to decisions related to pedestrian mobility. For example, if a manager was aware of additional funding that was available for sidewalk repairs but didn’t feel it was necessary for SSI then essentially they are denying a resource to pedestrians. The interviews with the agency

representatives will be reviewed with the concept of “managerialism” serving as a suitable research/conceptual framework.

### Interviews with Government Agencies

#### Islands Trust

Islands Trust is legislated through the *Islands Trust Act* and the *Municipal Act*, and has the same power as Regional Districts in British Columbia. However, the Islands Trust is unique because of its ‘preserve and protect’ mandate in order to conserve the southern Gulf Islands region. SSI elects two Trustees who, along with a third Trustee appointed from the Islands Trust Executive Committee, function like a town council in considering development applications and policy issues relating primarily to land use issues. SSI is the largest and most populated of the Gulf Islands in the Islands Trust and a study is currently taking place to determine if it should become an independent municipality. The Regional Planning Coordinator explained that on SSI the Islands Trust functions like a local government except that it doesn’t have the ability to provide hard services such as water, sewer or sidewalks. The Regional Planning Coordinator for SSI defined the role of the Islands Trust as “dealing primarily with land use planning, policy development and administration” (Adams, 2000).

When asked about elderly pedestrians, she felt that attention is given to this area when assessing development applications such as a development permit or a rezoning (Adams, 2000). She gave the example of a recent proposed development application involving a senior’s housing complex. Islands Trust is working with the developer to create a pedestrian easement away from Lower Ganges Road to connect with a commercial

development on the adjacent site. Islands Trust is not legislated to go out and build a road and the Ministry of Transportation and Highways owns the road right-of-way so this is one mechanism that can be used to construct a pedestrian walkway for seniors.

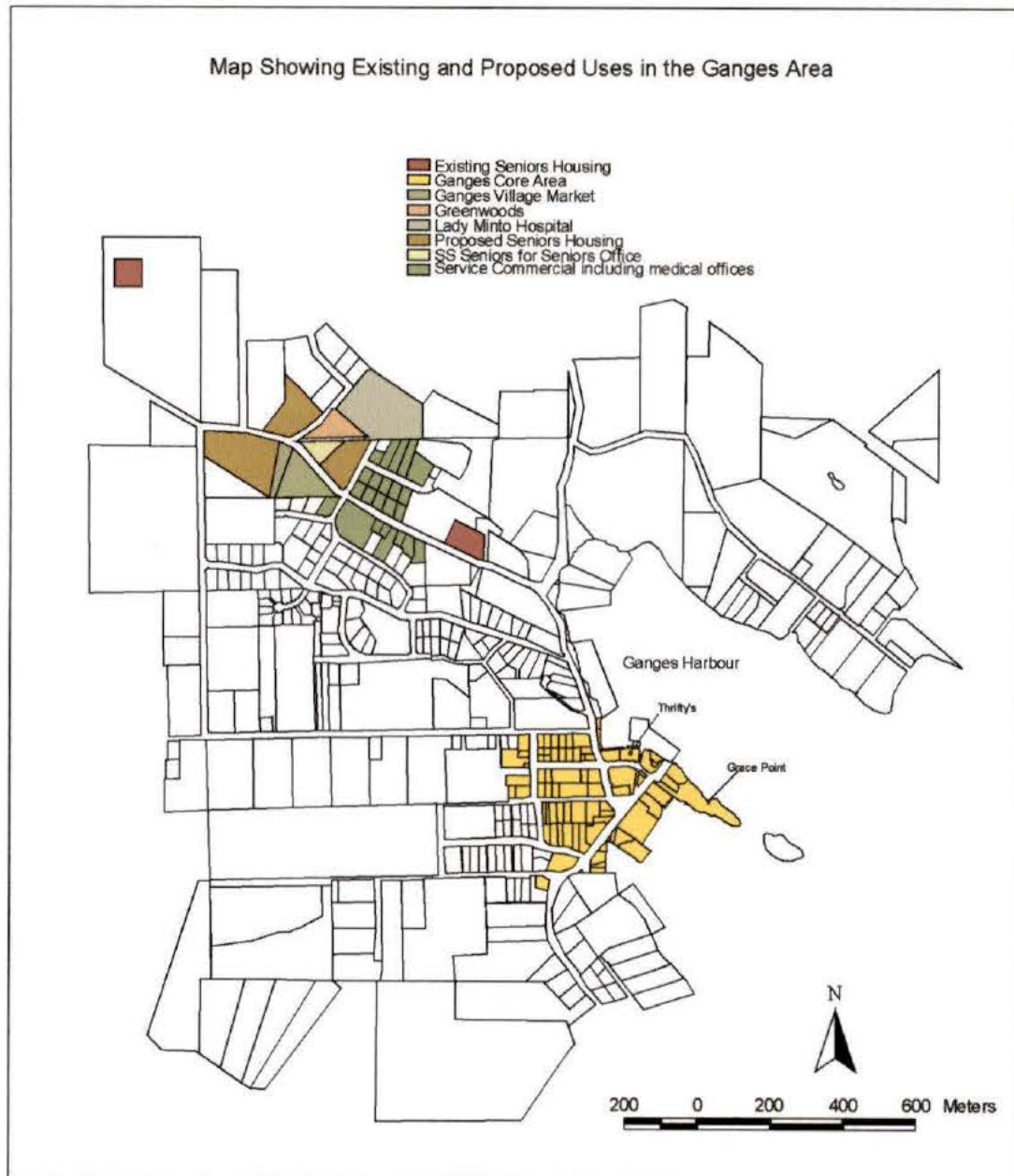
This example also raises the issue of cooperation among different agencies and organizations including developers. Islands Trust planners completed an extensive public review of pedestrian issues in 1993 during the development of the Official Community Plan for SSI. Many recommendations related to pedestrian issues were made as a part of this process. For example, commercial development applications are now being referred to a group of disabled people for review. The Advisory Design Panel's terms of reference have been re-drafted to include pedestrian issues and, architects and developers are now required to demonstrate how a project is pedestrian friendly.

The Regional Planning Coordinator felt that the Islands Trust does monitor demographic information and she was personally aware of the high percentage of seniors living on SSI and the impact that seniors have especially in the village (Ganges) area. She said that seniors are a very important component of the community and as a result a "pedestrian friendly" village will add to their experience in the community. Specific policies are in the Official Community Plan directly addressing senior's pedestrian issues. For example, the location of new seniors housing is to be within 0.8 km of the Health Services Zone near Lady Minto Hospital and design guidelines for seniors assisted housing have been strengthened (Salt Spring Island Official Community Plan, 1998). Figure 5 shows the existing senior's housing facilities, Greenwoods, Pioneer Village and Brinkworthy, as well as

two proposed senior's housing developments on either side of Lower Ganges Road just east of the SS Seniors Service Society building.

Despite their efforts, several concerns have been expressed to the Islands Trust by seniors or seniors organizations about pedestrian issues. These concerns included walking along the side of the road, which is becoming increasingly dangerous especially in areas like along Lower Ganges Road from Pioneer Village where there is no defined sidewalk (Figure 5). Another concern was the speed of traffic while walking on the side of the road. Also, the location or lack of crosswalks such as, the perceived need for a crosswalk in front of the Seniors for Seniors office across from the Ganges Village Market.

Generally, it appears that the Islands Trust is sensitive to and aware of the needs of elderly pedestrians. However, given its limited mandate and the inability to and do things like build new sidewalks, Islands Trust is left to develop policy or negotiate private walkways with developers. This leaves lobbying and working with the Ministry of Transportation and Highways to initiate some form of change.



**Figure 5 Map Showing Existing and Proposed Uses in the Ganges Area**

## Capital Regional District (CRD)

Salt Spring Island is one of the electoral areas of the CRD and is represented by one locally elected official at CRD Board meetings. The CRD provides services such as, park administration, waste management and building inspection. While most of the CRD offices are located in the Victoria area, the Building Inspector has a small office and staff to provide this service on island. The Building Inspector for SSI described the role of his office as ensuring compliance with the Building Code through building inspection, providing information to the public and administrative duties. The primary role of the office is to review and issue building permits for all buildings on the island.

He said that specific consideration is not given to seniors because their legislative authority is narrowly defined in the Building Code. However, he said through the Accessibility Guidelines of the Building Code, such things as, disabled access, ramps and lighting are covered which also affect seniors. On occasion, he is asked about a specific development such as wheel chair accessible bathrooms or parking for the disabled.

The Building Inspector did say that they would discuss specific developments with seniors and senior's organizations. For example, when the Salt Spring Senior's Service Society building was proposed he met with that organization as well as the architect to talk about specific issues related to that building. The office will also discuss with developers, applicants, and architects about accessibility issues for a particular development. The issue

that continues to come up is the location of the crosswalk in front of the Salt Spring Senior's for Seniors building.

The Building Inspector said that he was cognizant of the high percentage of seniors living on SSI and aware of the trend towards an aging population and the impact that it will have on the community. While the CRD Regional Planning Services department puts out regular information on demographics for the island, the Building Inspector said that he "just has to look out his window to see the number of seniors in Ganges." When asked if he was aware of what other communities were doing about this issue he said that most communities enforce the accessibility requirements of the Building Code as far as the politicians are willing to push things. For example, some Councils see disabled parking as an important issue and are willing to enforce it while other Councils may turn a blind eye to it.

The Building Inspector deals primarily with private property issues such as a building permit application. There's little he can do on public rights of way such as roads, to help the mobility of seniors. The Building Inspector appeared to be sensitive to the issue of senior's mobility but in his words was pretty much bound by the Building Code in terms of what he can and can't do. However, the Building Inspector did say that with political determination and direction more could be accomplished. This can only be accomplished by pressuring the CRD Regional Board to enforce stringently the code requirements.

## Ministry of Transportation and Highways (MoTH)

SSI falls within the South Island Region for the MoTH. The authority for this ministry is set out in the *Ministry of Transportation and Highways Act* (RSBC 1996). This Act begins by defining “transport” which is:

A method, manner or means of transportation and, without limiting this definition, includes aircraft, ships, boats and vessels, elevated, surface or subsurface railways or tramways, elevated cable cars. Motor vehicles and trailers, all terrain vehicles, hovercraft, and the hoists, cables, rails, rolling stock, pipe lines and conduits used in connection with transport. (p. 2)

Clearly, the intent of this legislation is for vehicular movement and not pedestrian movement. The Act also outlines the “purpose and functions” of the Ministry. These include: preparing and developing comprehensive policies on transportation in BC; research, study or inventory transport facilities and future requirements for BC; and, establishing transport services for ministries of the government.

The *Highway Act* (RSBC 1996), which is legislation for establishing, classifying and improving highways, is also applicable to the review of pedestrian mobility on SSI. Section 13.1 of this Act, states that MoTH may, by regulation, establish standards and requirements in relation to highways in areas outside a municipality, which would apply to SSI. Subsection 13.1 (2) (d) states that regulations may require that sidewalks, boulevards and boulevard crossings be located and constructed in accordance with the standards established by the regulations. Islands Trust currently has a “Road Standards Agreement” with MoTH but it only addresses vehicular movement (Islands Trust, 1996).

Like most areas of the province, the standard width for a public road dedication on SSI is 20 metres. This dedicated area would include the paved portion of the road, the unpaved shoulder and drainage ditches, for example. The width of the paved portion of the road varies depending on the classification of the road, the gradient or the sight lines. Roads such as Lower Ganges Road or Fulford Ganges Road are designated “main rural”, which is the highest road classification for SSI.

I interviewed the Regional Manager and Area Manager for SSI. They described the function of the MoTH on SSI as regulating development; maintaining roads including minor and major upgrades; regulating the movement of goods and people on the roads; and managing traffic on the roads including vehicles, bicycles and pedestrians. This function is done in cooperation with the RCMP, Islands Trust and the CRD. However, they specifically noted that their mandate did not include installation of sidewalks on SSI but they do maintain and install road shoulders.

This is one of the interesting anomalies that affect rural areas such as SSI. If there were a need for sidewalks then the initiative would have to come from the community or from a developer in order to construct and maintain them. MoTH may play a role in their design but if the sidewalks are not on Highways property (ie. within the road right-of-way) then they will not be involved in their construction or maintenance.

While they said they do not ignore issues related to seniors, specific consideration is not given to seniors. For example, the technical standard for the installation of crosswalks applies to all people and not to a specific group. The installation and location of a crosswalk

is determined by the volume of traffic and sight lines as determined by a technical design manual. They were clear that their office did not initiate policy and as a result they did not keep track of demographic trends for the Island. They are aware of the high number of seniors on SSI and usually become more aware as a result of a specific proposal such as a recent development to increase mall space at the Ganges Village Market across from the Salt Spring Senior's Service Society office.

Consultation does take place for specific developments. They gave the example of the Ganges Village Market (GVM) development and meetings with the developer, seniors, Islands Trust, CRD, RCMP. They said they also meet regularly with other government agencies and with resident's organizations and on a regular basis with the local MLA. Recently, seniors have expressed much concern because of the GVM development. Seniors, especially those affiliated with the SS Senior's Service Society organization, want a crosswalk installed that would enable senior's to cross Lower Ganges Road between the Senior's Service Society office and the GVM. However, the proposed location of the crosswalk doesn't conform to MoTH's guidelines and therefore was not installed. When asked if they were aware of what other districts were doing with regard to pedestrian issues they said for truly unorganized areas like Salt Spring, their district was doing exactly the same thing as other districts within the MoTH.

The Regional Manager said that he's been with this office 18 months and only two issues have come up that relate specifically to elderly pedestrians. One is the GVM crosswalk and the other was also a crosswalk for a small senior's housing development in the

Lake Cowichan area. He said that problems become more frequent with areas like Salt Spring, in particular Ganges, when they start to behave more like urban areas but they are still unincorporated, unorganized territories. The most difficult areas to manage and plan are ones that are in between being an unorganized territory and a municipal/urban area. He felt some of the problems may get sorted out if SSI becomes a municipality because then they could cost share with MoTH on different projects whereas now that can't happen. For example, the municipality would have a specific tax levy for infrastructure such as sidewalks.

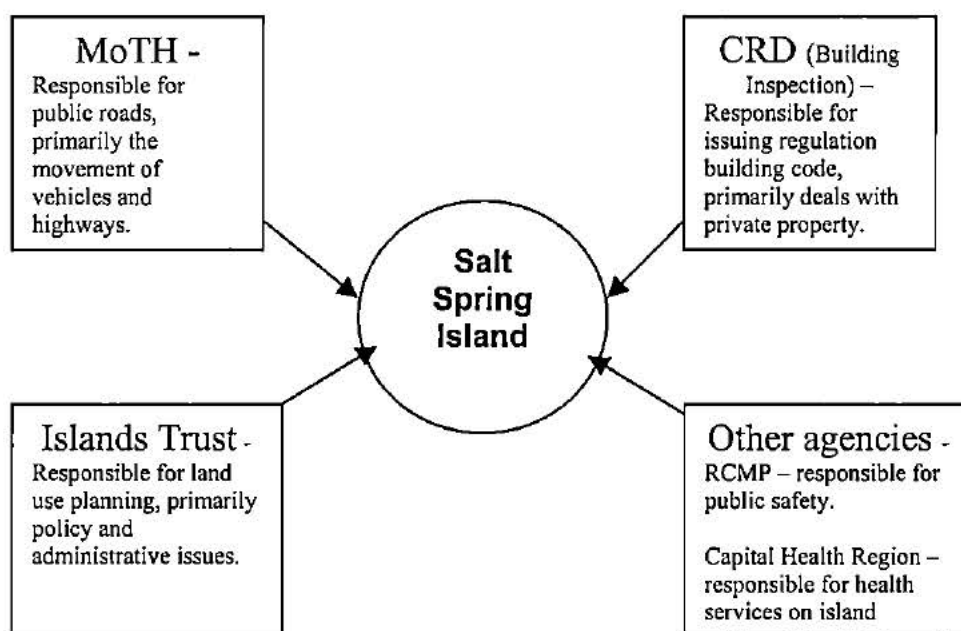
I didn't get a sense from the MoTH representatives that there was genuine concern for this issue. As engineers or technicians, they rely on technical manuals to determine where and when things like crosswalks should be installed. I mentioned about seniors walking on the side of the road and falling but they didn't perceive this as a risk or an issue that MoTH should deal with. When asked who should be contacted in order to bring about some change they said that people should contact their office and not politicians because change would come about faster from a local level.

### Summary of Interviews

It is clear from the interviews that each of the agencies has a different approach and perspective when it comes to pedestrian issues. Islands Trust is much more policy driven since it is not in their mandate to construct services such as sidewalks. The CRD Building Inspector relies on the Accessibility Requirements of the B.C. Building Code and the will of the politicians to press for change. Also, the Building Inspector deals primarily with private property interests. The MoTH seems to be in the best position to affect change because they

administer the public rights-of-ways on the island. However, they appear unwilling because they don't consider seniors' pedestrian needs to be a priority or within their authority.

Figure 6 illustrates the three agencies that were interviewed for this study and their primary responsibilities as well as other agencies that would impact pedestrian mobility.



**Figure 6 – Agencies and responsibilities for pedestrian issues on SSI**

Managerialism suggests that key bureaucrats, such as those interviewed for this study, play an important role in regulating access to resources and affecting the internal structure of communities. These suggestions are accurate for the three agency representatives that were interviewed. The Islands Trust representative was aware of the aging population and introduced policies in their Official Community Plan to address some of the needs of seniors but there is little else they can do. Obviously, the Islands Trust being a planning agency

would affect the internal structure of SSI; however, they don't have any resources, other than staff resources, to limit access to.

The same could be said for the CRD Building Inspector. He was aware of the high number of seniors on the island and knowledgeable of their needs, however, was limited by the requirements of the Building Code. Another limiting factor was that most of his involvement was with private property issues. The Building Inspector did say that if there was political will, the Building Code requirements could be expanded and more diligently enforced. This would seem to suggest that the Building Inspector has more latitude in terms of their regulation of the Building Code requirements than one is left to believe. This would confirm the managerialist theory for affecting the internal structure of an area.

The MoTH officials interviewed seemed the least concerned about the issue and yet their agency is the one that could provide the greatest impact to pedestrian needs. They maintained that MoTH's mandate on SSI was to move goods and people. However, this didn't seem to include elderly pedestrians unless, for example, some form of cost sharing to construct sidewalks could be arranged with another government agency. The MoTH Regional Manager would seem to best exemplify the concept of managerialism. One wonders if he felt more compelled by this issue, if he could submit a budget request for more funding for sidewalks, for example.

One of the criticisms of managerialism is that it doesn't take into account the role politicians or the economy play in affecting the decision of the managers (Cater and Jones,

1989). This is also a limitation of this research, in that politicians were not interviewed about their views on seniors' pedestrian issues. However, one of the purposes of bureaucrats is to inform the politicians when policies become outdated and when new initiatives are needed to take into account current needs.

It should also be noted that both the CRD and Islands Trust have offices located on the island in Ganges, whereas the MoTH office is in Victoria. The Building Inspector made the comment that he “only has to take a look out the window to see the numbers of seniors”. This may seem somewhat simplistic but if the MoTH had more of a presence on island then they might feel more in tune with the needs of the community.

### Summary

The interviews with the government representatives provide a better understanding of the administrative structure of SSI in terms of pedestrian issues. It is clear that each agency addresses the needs of elderly pedestrians in very different ways. Islands Trust is much more policy driven, the CRD regulates the Building Code and deals primarily with private property issues and the MoTH focuses more on vehicular movement than pedestrians. The next step in the research is to try to identify the issues that elderly pedestrians encounter on SSI and once that is done to determine what the government agency's need to do to address those needs.

## Chapter 5

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### SURVEY RESULTS - QUESTIONNAIRE

#### Introduction

The previous chapter provided some useful background to the political and administrative structure of SSI by introducing the three principal agencies involved in pedestrian issues and some attitudes held by key managers. This understanding of the administrative structure provides a context for this chapter which focuses on the “clients” and their knowledge of pedestrian mobility. The compiled responses for each of the questions will be described and reviewed with further analysis provided in some cases. Pattern of route choice will be compiled using Geographic Information Systems (GIS) software to determine the geographic pattern of preferred routes for seniors in the Ganges area as well as any hazards or barriers that were identified.

#### Characteristics of the Sample

The data for this study comes from 44 questionnaires that were completed by seniors living on SSI. All of the respondents except for two were 65 years of age or older. The questionnaires were self-administered and the data was collected during April and May of 2000. The data set includes a variety of information from age and gender to information on

barriers encountered and government agencies involved in pedestrian mobility. Sixty questionnaires and maps were distributed to members of the Salt Spring Seniors for Senior's society over a three-week period. Thirty-four questionnaires and 29 maps were completed and returned. I also met with the Health Coordinator for Greenwood's Care Facility (Figure 5). She distributed 20 questionnaires to seniors at the facility and assisted with their completion. Ten completed questionnaires were returned from Greenwoods bringing the total completed questionnaires to 44.

The list of questions that were in the questionnaire titled, "Identifying the Patterns of Pedestrian Mobility of the Elderly on Salt Spring Island, BC" is as follows:

1. Gender  
Female  Male
2. Age  
64 or under  65 – 69  70 – 74  75 – 79  80 - 84  Over 85
3. Do you use a mobility aid in order to get around?  
Cane or crutches  Scooter  Walker  Wheelchair  Other
4. Do you consider walking to be your primary mode of transportation?  
Yes  No
5. Do you own a car?  
Yes  No
6. What other forms of transportation do you use?  
Car  Public Transportation  Bicycle   
Rides with friends or family  Other
7. Why do you normally walk?  
For exercise  To get to services,  To buy groceries  To socialize   
Other
8. How far do you normally walk in a day?

< 1km \_\_\_ 1 – 3kms \_\_\_ 4 – 6kms \_\_\_ 7 – 9kms \_\_\_ 10kms or more \_\_\_

9. Have you encountered barriers while walking?

Cracked sidewalk \_\_\_ Pothole \_\_\_ Poor lighting \_\_\_ Uneven surface \_\_\_ Badly placed crosswalks \_\_\_ Overgrown trees or roots \_\_\_ Vehicles parked on walkway \_\_\_ Too much traffic or busy road \_\_\_ No curb cut \_\_\_ Other (s) \_\_\_

10. Do you normally walk:

On the side of the road \_\_\_ On a path or walkway \_\_\_ On the street \_\_\_ Other \_\_\_

11. Have you ever slipped, tripped or fell while walking?

Yes \_\_\_ No \_\_\_

a) If Yes, what caused you to slip, trip or fall:

b) Did you report the slip, trip or fall to anyone or to any agency?

c) Did you require medical treatment as a result of the accident?

12. In your opinion, how safe is it for you to get around on foot in your community?

Very safe \_\_\_ Fairly safe \_\_\_ Not very safe \_\_\_ Not at all safe \_\_\_ No Opinion \_\_\_

13. Do you think there are any streets or parts of streets that are particularly unsafe for pedestrians?

a) Name of street (s)

b) Unsafe feature

14. Have you ever made a complaint to anyone in authority about the conditions for pedestrians around here?

a) Yes \_\_\_ No \_\_\_

b) If Yes, to whom:

Local Trustees \_\_\_ CRD Regional Director \_\_\_ Local MLA \_\_\_

Local MP \_\_\_ Police \_\_\_ The Press \_\_\_ Islands Trust staff \_\_\_

Ministry of Transportation and Highways staff \_\_\_

Capital Regional District staff \_\_\_ Other \_\_\_

c) What was the complaint about?

15. What agency is responsible for walkways and pedestrian activity in your community?

Islands Trust \_\_\_ Ministry of Transportation and Highways \_\_\_

Capital Regional District \_\_\_ Other \_\_\_

16. In your opinion, what changes should be made to make it easier for seniors to get around in your community?

**See Appendix 2 for the complete questionnaire.**

Table 1 provides a breakdown of the questionnaire respondents in terms of age and gender as well as a comparison with similar age and gender groups for the Gulf Islands within the CRD (CRD Regional Planning Services, 2000). About two-thirds of the respondents were female with a median age of approximately 76 for both males and females.

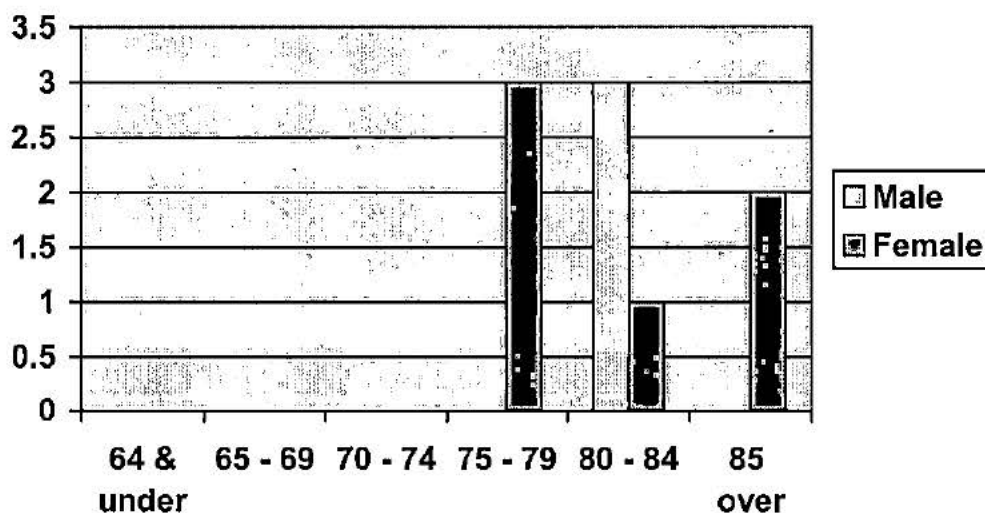
Age Group	MALE		FEMALE		Total Sample	Total for Gulf Islands in the CRD
	(% of sample)	(% of total for Gulf Islands)	(% of sample)	(% of total for Gulf Islands)		
64&under	1 (2.3%)		1 (2.3%)		2	
65-69	1 (2.3%)	485 (16%)	6 (13.6%)	445 (14.7%)	7	930
70-74	5 (11.4%)	405 (13.4%)	6 (13.6%)	480 (15.8%)	11	885
75-79	2 (4.5%)	295 (9.7%)	11(25%)	320 (10.6%)	13	515
80-84	3 (6.8%)	170 (5.6 %)	3 (6.8%)	200 (6.6%)	6	370
over 85	2 (4.5%)	90 (3%)	3 (6.8%)	140 (4.6%)	5	230
<b>Total</b>	<b>14 (31.8%)</b>	<b>1445 (47.7%)</b>	<b>30 (68.2%)</b>	<b>1585 (52.3%)</b>	<b>44</b>	<b>3030</b>

Table 1– Age and gender of questionnaire respondents

### Use of Mobility Aids

In order to assess some of the barriers to pedestrian mobility, people were asked about whether they used a mobility aid such as a cane or walker. A total of 9 seniors said they used some form of mobility aid to get around which represents about 20% of the entire sample. Eight of the nine said they use a crutch or a cane while one senior said they use a

walker. At the beginning of the research, I made the assumption that as a result of the rural nature of SSI, that primarily able-bodied seniors would reside there. However, the above results seem to suggest that a sufficient proportion of seniors use mobility aids in order to get around. In fact, these results appear consistent with other research that has been done on the use of mobility aids. Another study on the use of devices by those with mobility restrictions found that about 16.6% of the sample used a mobility aid (Chappell and Zimmer, 1994). The sample size of this previous study, which sampled about 1,400 seniors, was much larger than this research which would account for the slightly higher percentage. However, it should not be assumed that fewer seniors use mobility aids on SSI and more should be learned about their specific needs. This would further substantiate the need for better-maintained and planned walkways for seniors.



**Figure 7 – Use of Mobility Aids Among Seniors**

## The Importance of Walking on Salt Spring Island

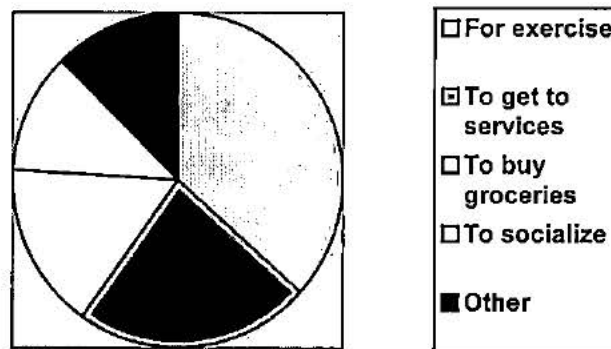
One of the objectives of this study was to determine the importance of walking on SSI. It has already been demonstrated that seniors living in a barrier free and enabling environment are more likely to age in place and remain independent not to mention be less likely to experience a fall. Several of the questions in the questionnaire were asked to attempt to understand better just how important walking is for seniors on SSI and the analysis of these questions will follow in this section.

Of the 44 seniors that completed the questionnaire, in answering question 4, 11 individuals said they considered walking as their primary mode of local transportation. Of those, five were male and six females. Their ages tended to be in the younger age categories with an average age of approximately 74. A related question was asked as to whether or not the respondent owned a car. Nine individuals answered that they did not own a car. There was some correlation between those that said that walking was their primary source of transportation and those that answered that they didn't own a car. However, walking was still considered the primary mode of transportation for some individuals who also said they owned a car. Given the rural nature of SSI together with no public transportation, it would be assumed that those that do not own a car would almost have to live in the Ganges area. It would be very difficult to live in one of the remote areas of the island and not have a car.

Related to car ownership is the question of other forms of transportation that seniors use in order to get around on the island. Not unexpectedly, the car was the form of transportation that most seniors favoured. About 52% or 23 seniors said that the car was

their primary form of transportation. However, a large number of seniors said that rides with friends or family were an important mode of transportation. Of these 17 individuals, 13 were female by far the majority. It should also be noted that those that cited rides with friend or family tended to be in the older age categories. Thirteen of the 17 were over the age of 75 with three over 85.

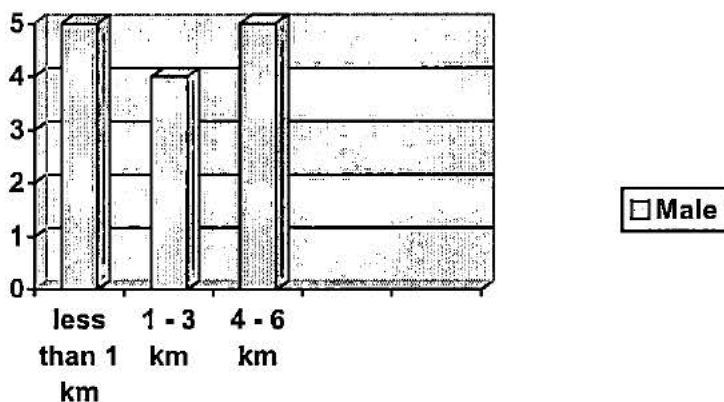
Seniors were asked in the questionnaire about why they normally walked, with the choices provided ranging from exercise to getting to services. As shown in Figure 8, the majority of the seniors said that they walked for exercise followed by getting to services as the next popular choice. Getting groceries and socializing were the next choices followed by 13 individuals that listed other as their reason to walk. Of those that said 'other', walking the dog and hiking were the most popular reasons for walking.



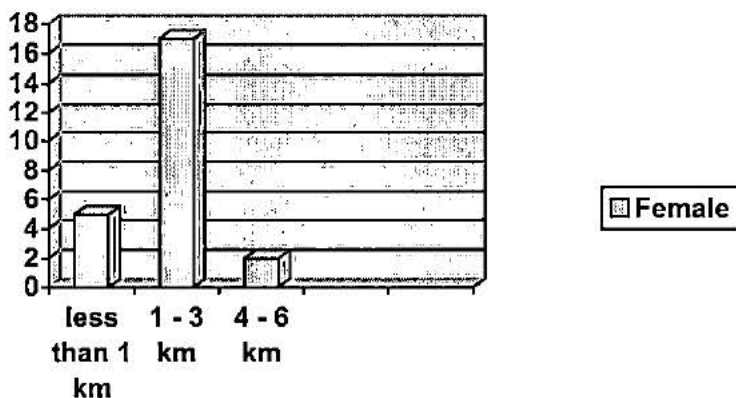
**Figure 8 - Why do seniors normally walk?**

Finally, to conclude this section, seniors were asked how far they normally walk in a day with a range of distances from less than 1 kilometer to greater than 10 kilometers (km)

given. The analysis for this question will be divided into the two gender groups because the responses appear to differ for each group. Of the 14 men that answered this question, they are almost equally divided into three groups. Five said they walk less than one km per day, 4 said they walked between 1 and 3 km per day and five said they walked between 4 and 6 km per day. While of the 24 women that responded to this question, 5 said they walked less than 1 km, 17 said they walked between 1 and 3 km and 2 said they walked between 4 and 6 km. See Figures 9 and 10 for the results for each group.



**Figure 9 – Distance normally walked in a day (Males)**



**Figure 10 – Distance normally walked in a day (Females)**

### Barriers Encountered While Walking

In an attempt to understand the constraints to walking on SSI, several questions were asked about barriers encountered. Specifically, these questions asked what barriers were encountered while walking, whether or not a senior had slipped tripped or fallen, where seniors normally walk (i.e. on the side of the road), the perception of risk and the location of unsafe streets. In this section, the results of these questions will be summarized.

When asked if they had ever encountered a barrier while walking, the two primary constraints identified in the questionnaire were ‘uneven surfaces’ and ‘too much traffic or busy road’. The next most prevalent barriers identified were ‘potholes’ and ‘badly placed crosswalks’ followed by ‘cracked sidewalk’, ‘poor lighting’ and ‘no curb cut’. The three least prevalent barriers were ‘vehicles parked on the walkway’, ‘overgrown trees or roots’ and ‘others’. The responses under ‘others’ included dogs, lack of a walking lane and roadside debris. See Table 2 for a summary of the responses.

Uneven surface	31
Too much traffic or busy road	29
Pothole	19
Badly placed crosswalks	18
Cracked sidewalk	12
Poor Lighting	12
No curb cut	12
Vehicles parked on walkway	9
Overgrown trees or roots	6
Other (s)	4
<b>Total responses</b>	<b>152</b>

**Table 2 – Barriers Encountered While Walking**

It has already been discussed that SSI is a rural community. One of the common aspects of a rural community relevant to pedestrians is generally a lack of sidewalks or formal walkways. To understand better where seniors most often walk, they were asked to describe where they normally walk. From a choice of four responses, most seniors, well over half, said they normally walk 'on the side of the road'. After that seniors chose 'on a path or a walkway' followed by 'on the street'. There were two responses to 'other' which included walking on trails and walking at Portlock Park on the running track.

The serious consequences for seniors of falling were discussed earlier. Much of the research on seniors falling has taken place in urban environments. To further research on falls in a rural environment, seniors were asked in the questionnaire if they had ever slipped, tripped or fallen while walking on SSI. A total of 16 seniors, about 36 % of the total respondents, said that they had suffered some sort of fall. Of this number 11 are female and the remaining five males and the average age for each group was about 75.

In terms of the severity of the fall, eight or half of the group said they required medical treatment as a result of the fall. Few gave details of their injury, however, one senior said the fall caused cracked ribs. When asked what caused the fall, most of the seniors said that an uneven surface resulted in the fall. Other factors identified were potholes, drop off sidewalk, tree roots, moss, ice and water, loose gravel and a dog caused one senior to fall. Finally, they were asked if they had reported the fall to anyone. Of the 16 seniors who fell, only three said they had reported the incident to anyone with one senior saying that she told her doctor.

### Perception of Safety

Seniors were asked in the questionnaire, if in their opinion they felt that it was safe to get around on foot on SSI. Table 3 below provides a summary of all of the responses.

Very safe		3
Fairly safe		23
Not very safe		12
Not at all safe		3
No opinion		1
<b>Total</b>		<b>42</b>

**Table 3 – Perception of safety**

This summary shows the distribution of the responses and also indicates that over half of the seniors felt that the island was ‘fairly safe’ for getting around on foot. There were an equal number that felt the island was ‘very safe’ and ‘not safe at all’ with about 30% of the seniors saying that the island was ‘not very safe’. Looking at this data one can see that well over half of the seniors felt the island was at least ‘fairly safe’ and from this it could be summarized that the general perception of seniors is that the core area of SSI is reasonably safe to get around by foot.

However, is there a distinction between men and women in their perceived safety of getting around by foot on the island? The following analysis using chi-square will measure the possible relationship of the perception of safety between men and women. Table 4

outlines the actual and expected frequencies for each of the responses for each male and female and the chi-square computed for each cell in the table. The final sum, 2.37, is the value of the chi-square.

<b>Actual</b>			
	Male	Female	Total
Very safe	2	1	3
Fairly safe	6	17	23
Not very safe	5	7	12
Not at all safe	1	2	3
Total	14	27	41
<b>Expected</b>			
	Male	Female	%
Very safe	1.02	1.97	7.32
Fairly safe	7.85	15.14	56.1
Not very safe	4.09	7.9	29.26
Not at all safe	1.02	1.97	7.32
Total			100
<b>Analysis</b>			
	Male	Female	Total
Very safe	0.92	0.48	
Fairly safe	0.43	0.22	
Not very safe	0.19	0.10	
Not at all safe	0.0006	0.0003	
Total	1.56	0.81	2.37

**Table 4 – Chi-square analysis of differences in perception of safety between males and females**

The degrees of freedom is computed as three and then by reviewing a table of chi-square values we find that 50% of the time a chi-square of 2.3 should be expected (Babbie, 1989). For the findings to be statistically significant at the .05 level, chi-square should be greater than or equal to 7.82. As a result, the distribution is not significant and it is assumed that there is no relationship between gender and the perceived safety of elderly pedestrians. It should also be noted that three seniors did not respond to this question, which in itself could affect the distribution.

As a means of testing further if there is a relationship between gender and the perceived safety of elderly pedestrians, the values for 'very safe' & 'fairly safe' and 'not at all safe' & 'not very safe' were combined (See Table 5). The degrees of freedom is computed as one and then by reviewing a table of chi-square values we find that 50% of the time a chi-square of .36 should be expected (Babbie, 1989). For the findings to be statistically significant at the .05 level, chi-square should be greater than or equal to 3.84. As a result, the distribution is not significant. Even with combining the two sets of values, there is still no relationship between gender and the perceived safety of elderly pedestrians.

<b>Actual</b>			
	Male	Female	Total
Very safe & Fairly safe	8	18	26
Not very safe & Not at all safe	6	9	15
<b>Total</b>	<b>14</b>	<b>27</b>	<b>41</b>
<b>Expected</b>			
	Male	Female	
Very safe & Fairly safe	8.88%	17.12%	63.41%
Not very safe & Not at all safe	5.12%	8.62%	36.59%
<b>Total</b>			<b>100</b>
<b>Analysis</b>			
	Male	Female	Total
Very safe & Fairly safe	0.09	0.05	
Not very safe & Not at all safe	0.15	0.08	
<b>Total</b>	<b>0.24</b>	<b>0.12</b>	<b>0.36</b>

**Table 5 – Chi-square analysis of differences in perception of safety between males and females when values for ‘very safe’ & ‘fairly safe’ and ‘not very safe’ & ‘not at all safe’ are combined.**

### Safety Concerns

Another objective of this study was to identify streets that are unsafe and the particular feature of the street that makes it unsafe. Thirty-four seniors identified a street or streets they felt were unsafe and many identified more than one feature that made that street unsafe. All or part of Lower Ganges Road was chosen by 15 seniors as being unsafe and the

particular features that made it so included: poor shoulders, lack of sidewalks, heavy traffic, no safe pedestrian crossings, poor visibility, too narrow, fast moving vehicular traffic, loose gravel and bad drivers.

Seaview and McPhillips Avenues were identified by a number of seniors as unsafe streets. Particular concerns noted included: no sidewalks on either side of the road, too much vehicular traffic, an unclear pattern of traffic and no crosswalks. Several seniors made the comment that most roads in the Ganges area were unsafe with specific concern about the lack of crosswalks, no curbs or sidewalks, confusing traffic patterns, poor visibility and not enough stop signs. A summary of the street names and their unsafe feature(s) is provided in Table 6.

The streets that are named below and the specific safety issue about the street give some indication of the range of concern that pedestrians have. While the list of streets does not name all of the streets in Ganges, it does list the majority of the primary routes in and around the town centre. The list of concerns is also very comprehensive.

Name of Street	Unsafe Feature
Lower Ganges Road	Very poor shoulders; No sidewalks or pedestrian crosswalks; Poor visibility, bad lighting, steep hills resulting in poor visibility; Cars go much to fast; walkway to narrow & traffic to fast, heavy; to narrow; lack of sidewalk; no crosswalk at Lower Ganges and Blain Road; Traffic; no sidewalks, too much traffic, speed on narrow road around curves; too much traffic and no sidewalks; narrow sections; pedestrian forced to walk on busy road; very rough road; poor crosswalk placement in from of Centennial Park; no shoulder or path; loose gravel or soft shoulders make walking very difficult; no sidewalk; speeding cars.
Seaview Road	No sidewalks; Narrow road; Too much traffic.
McPhillips Road	Cars parked on shoulder; dangerous drivers; Too much traffic; no pedestrian walkways; Unclear traffic pattern.
Brinkworthy Road	Rough road; Pot-holes; No shoulder.
Long Harbour Road	Heavy traffic; Narrow shoulder.
Blain Road	Narrow road; poor visibility; No shoulder.
Atkins Road	No shoulder
North End Road	Too narrow; No shoulder.
Downtown Ganges	Uneven and sloped surfaces; Crosswalks poorly placed; Not enough crosswalks; More stop signs needed.
All roads	No shoulders or sidewalks; Poorly placed crosswalks; Bad drivers; No sidewalks or curbs; No crosswalk between GVM and Seniors centre; Poor visibility; Bad lighting; Steep hills.
Downtown Ganges	Uneven and sloped surfaces; Crosswalks poorly placed;

	Not enough crosswalks; More stop signs needed.
All roads	No shoulders or sidewalks; Poorly placed crosswalks; Bad drivers; No sidewalks or curbs; No crosswalk between GVM and Seniors centre; Poor visibility; Bad lighting; Steep hills.

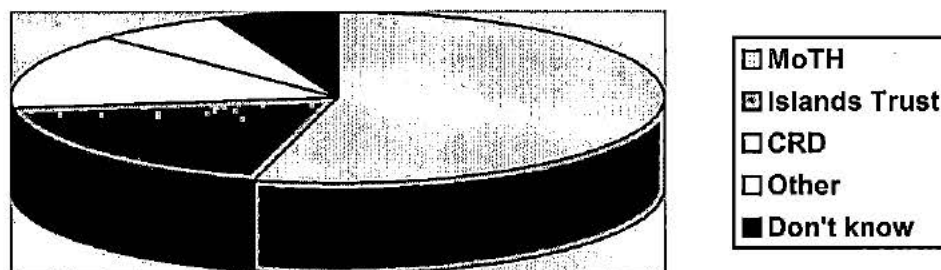
**Table 6 – Unsafe streets and characteristics**

The next question was attempting to determine the severity of pedestrian concerns by asking seniors if they had ever complained to anyone about a specific issue and what the issue was. Of the 44 seniors that responded to the questionnaire, 9 said that they had made a complaint about a specific problem. Most of those complained to more than one agency but six seniors named the Ministry of Transportation and Highways as one agency they complained to. Four and three seniors named the Local Trustees of the Islands Trust and the CRD Regional Director, respectively. While the RCMP and the Parks and Recreation Commission were named twice. Only one person said that they went to the local media.

The concerns that were the subject of the complaints ranged from the speed of traffic to large trees and roots affecting the shoulder. Two of the complaints were about the perceived need for a crosswalk between the Senior's for Seniors building and the Ganges Village Market. Three of the complaints dealt with the lack of sidewalks or walkways and the generally poor condition of the areas that do exist for pedestrians.

### Who is responsible for pedestrian routes?

Another objective of this study was to determine the awareness of seniors of the government agency responsible for walkways and pedestrian activities on SSI. There were four choices that the seniors could choose from in order to answer this question: Islands Trust; Ministry of Transportation and Highways; CRD; and, other. As Figure 11 shows, the MoTH was overwhelmingly chosen, as the agency seniors believed to be responsible for these activities.



**Figure 11– What agency is responsible for pedestrian issues**

### General Comments

The responses to the final question were summarized by performing a thematic analysis (Aronson, 1994). Undertaking a thematic analysis involves categorizing the responses into identifiable themes or patterns. In the case of the responses to the final question, six different themes were identified.

The majority of the responses had to do with sidewalks. The comments ranged from improving the sidewalk network to wanting more sidewalks to requesting sidewalks be placed in specific areas, such as along Lower Ganges Road. In response to this question, one of the seniors wrote: "Move to a place that has sidewalks better visibility & buses. No I'm not an old grouch, as many people will tell you. I love the Island, but I wish it were easier to get around without breaking my hip as I did." This comment gives some sense of the frustration around this issue and also the attachment to living on Salt Spring.

The next set of responses focused on improving or constructing shoulders on the sides of the roads. The comments suggested that paved shoulders should be placed on important pedestrian routes and that a budget should be allocated to maintain a program to pave shoulders. These comments are not surprising since it was already determined that the majority of seniors on the island walk along the side of the road, presumably on the shoulder.

Crosswalks were another significant topic of concern. There were a number of comments that a crosswalk should be placed between the Salt Spring Seniors for Seniors office and the Ganges Village Market across the street. Again, it is not surprising that this topic was raised, as it is currently a relevant topic on the island as evidenced by comments from officials from the Islands Trust, CRD and the Ministry of Transportation and Highways. One senior even suggested that there should be an overhead walkway in this location. Other comments about crosswalks included that there should be more crosswalks, the existing network in the town centre area is poorly planned and that greater education on the use of crosswalks is needed.

Another area of comment was on the need for public transportation on the island. Currently, SSI does not have a public transportation bus system. A few years ago a bus, operated by a local person, ran between the three ferry terminals on the island while dropping off and picking up people in the Ganges area. The bus operated for about a year, however, it soon became evident that like most public transit, some form of subsidy is required. The operator applied to BC Transit, BC Ferries, the CRD and Islands Trust for some form of funding but was turned down on all fronts. This is somewhat of a sore point for some locals who saw this as an opportunity for public transit on the island but were subsequently denied.

Aside from comments on the need for public transportation, other responses included coordinating public transit with the ferry system and a shuttle bus service in the Ganges area. One senior commented that a “subsidized bus service would not only help tourists get around the island but would enable seniors to get to groceries etc. without being forced to move off island.”

The next area could be summed up as concerns about vehicular traffic. A number of issues came up within this area including: the need for more warning signs to slow traffic; better adherence to parking rules; installation of traffic calming devices; the placement of stop lights in some areas of Ganges; and, a lower speed limit on roads in Ganges. If most of the seniors are walking on the sides of roads then these comments are warranted to improve their safety.

Finally, there were a number of comments that were unique and could not be classed in any of the above groups. These comments included: providing a place for seniors to park their electric scooters; the need for more car pooling on Salt Spring; large trees are nice to look at but also cause visibility problems; a trail system in the downtown is a good idea; and, the boardwalk along the Ganges Harbour needs completing.

### Summary

These responses demonstrate that in the area of pedestrian mobility there are some areas of general concern to seniors on SSI. It also shows the diversity and range of concern that seniors have when discussing their pedestrian mobility. It also gives some insight into how “clients” feel about the agencies that manage the system. It is now appropriate to turn to the spatial choices/preferences that seniors employ when walking in the Ganges area.

## Chapter 6

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# HAZARD PERCEPTION – MAPPING PEDESTRIAN SURVEY RESULTS

### Presentation of Mapping Information

As noted earlier, about 60 maps of the Ganges area were distributed to seniors and 29 maps were returned. There were specific instructions attached to the maps requesting that the seniors draw on the map the pedestrian route(s) they most often walk or that they most recently used in the Ganges area; mark any barriers or hazards (misplaced crosswalk, a pothole, a large crack, etc.) with a symbol such as an X; and, put any concerns or comments on the map such as suggested pedestrian routes or crosswalks. The Salt Spring Seniors Service Society Wellness Coordinator was also available to assist with the completion of the maps. A reduced version of the map distributed to seniors is shown in Figure 12.

It was hoped that the data from the seniors would indicate the important routes that seniors use in Ganges and the barriers they encounter. This information could then be used to identify well-used routes, initiate improvements to those routes and possibly to construct new sidewalks or walkways for not only seniors but all pedestrians. Agencies such as the

Islands Trust and MoTH may find this information useful in their efforts to improve the pedestrian mobility of the elderly.

In order to assist in the interpretation and presentation of the data, ArcView GIS software was used. This resulted in the preparation of two maps: Figure 13 shows the often used pedestrian routes in Ganges and Figure 14 shows the barriers that were identified by seniors.

### Walking routes identified in the Ganges area

In order to compile and interpret the data, the information from the completed maps was entered into a table and a value was assigned to each entry. For example, 20 seniors indicated on the map that Lower Ganges Road from Brinkworthy Road to Crofton Road was an often-used pedestrian route. When all of the information was entered into the table a value was assigned for each section of road identified. The values were then superimposed onto the digital map, which produced a frequency ranging from 10 to 1. Ten represents the most heavily used route and 1 being a lesser-used route. This information was then added to the map of Ganges and is presented in Figure 13.



It is clear from this map that the route from Brinkworthy to Crofton Roads along Lower Ganges Road is a very well used route. This is no surprise since there is a senior's residence on Brinkworthy, the Salt Spring Seniors Service Society office on Lower Ganges Road as well as the Ganges Village Market across the street. Also, there are other multi-family residences in this area as well as medical facilities and commercial operations. Given the mixed uses in this area as well as the increased density it is obvious that this is a well-used pedestrian route not only for seniors but also likely for all residents.

Another area that was identified by seniors as heavily used by pedestrians is the area that is considered the town core of Ganges by Thrifty's grocery store and the Grace Point development. This area is a pleasant area to walk because it is relatively dense and has many of the commercial businesses on SSI such as banks, restaurants, shops and services. This is also the only area, which is a very small section of Ganges, on Salt Spring Island that has sidewalks so it is no surprise that many seniors walk in this area not only to get services but also just to walk off of the road.

### Hazards and Barriers

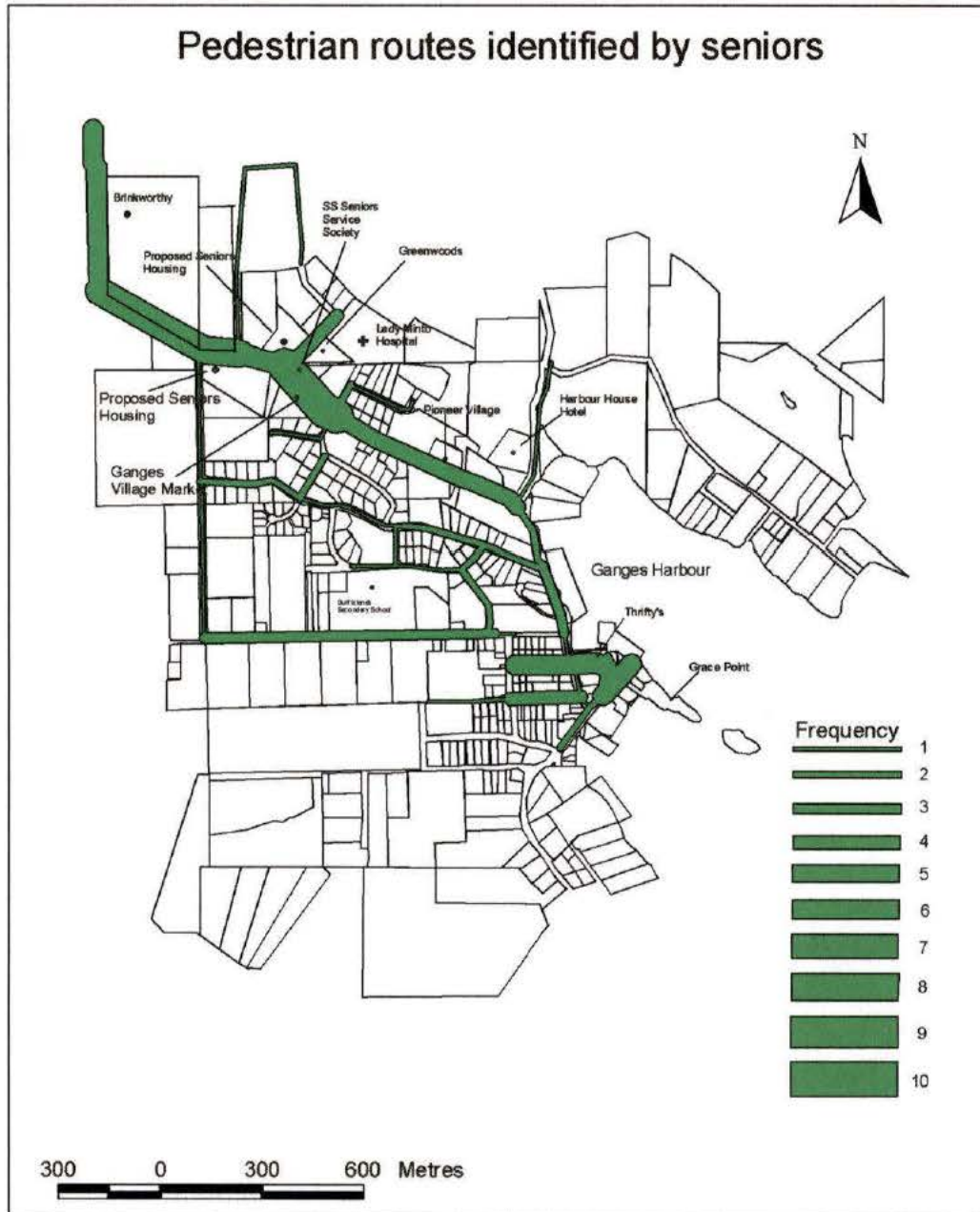
Of the 29 maps completed, 14 seniors (49%) indicated hazards or barriers in the Ganges and Lower Ganges Road area. Figure 14 shows the four areas that were the focus of the concerns. The crosswalk between the SS Seniors Service Society building and the GVM shopping centre has been mentioned several times throughout this study so there is no surprise that once again seniors comment on the need for a crossing across Lower Ganges Road. It can be seen in the map that Lower Ganges Road curves slightly in this area, which

is one concern, MoTH staff has in locating a crosswalk in this location. Another concern not indicated on the map is that there is also a slight hill as vehicles approach this area from the west that further limits visibility and the speed limit in this area is 50 kilometers per hour.

The second area of concern is described as the south side of Lower Ganges Road generally in the area of the GVM shopping centre. Concerns about this area centered on the lack of a shoulder, potholes, a very narrow walking surface and too much vehicular traffic going to fast.

The third area indicated on the maps as having hazards or barriers was McPhillips and Hereford Roads. One senior summed up the concern by saying, “there is really no proper walkway on these roads and cars are parked over the shoulders so pedestrians must come out between them and the oncoming traffic.”

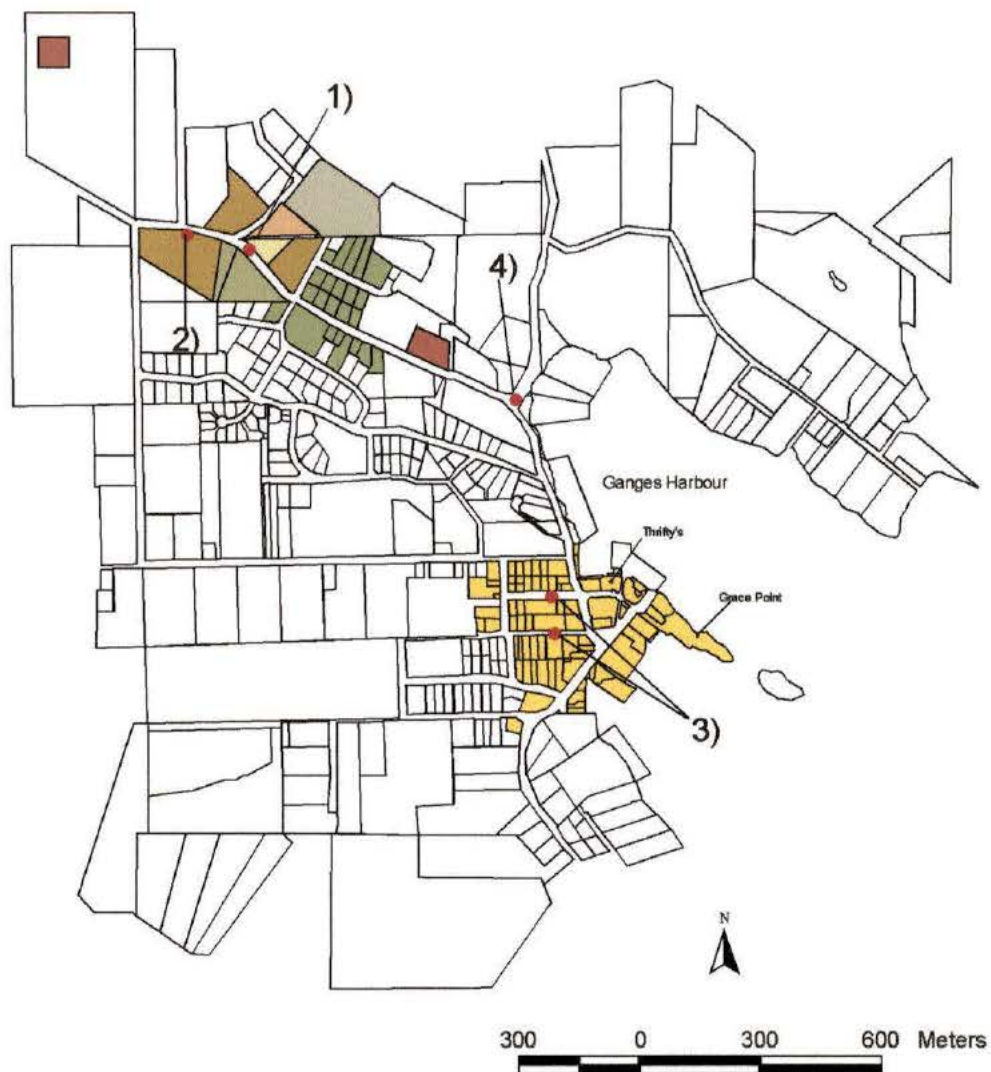
Finally, one senior noted that the intersection of Lower Ganges and Upper Ganges Roads was both potentially a pedestrian and vehicular hazard area. There is no crosswalk in this location on either side of the street and there is a very wide road surface for pedestrians to negotiate. Vehicles making a right hand turn from Lower Ganges onto Upper Ganges Roads rarely slow down while turning and vehicles turning onto Lower Ganges Road have to accelerate rapidly because the traffic in this area is high and traveling at an increased speed.



**Figure 13 Map Showing Ganges Pedestrian Routes**

## Locations of hazards and barriers

- 1) 10 seniors indicated that crossing Lower Ganges Road between the GVM and Seniors office is a hazard
- 2) 2 seniors noted the poor condition of the shoulders on the south side of Lower Ganges Road near GVM
- 3) 1 senior said that McPhillips and Hereford Roads are a hazard due to a number of reasons
- 4) The intersection of Upper and Lower Ganges Roads was noted as a hazard



**Figure 14** Map Showing the Hazard Areas in Ganges

## Summary

The geographic data provides a good representation of the form, location, diversity and range of issues facing elderly pedestrians on SSI. The responses to the questionnaires as well as the mapping data offer useful information to further the study of the pedestrian mobility of the elderly. The next step is to discuss and integrate the analyses and review all of the data to obtain a composite picture. This includes the interviews with the agency representatives, the questionnaire responses and the mapping information to determine if the objectives stated earlier in the paper have been met.

## Chapter 7

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### SUMMARY AND DISCUSSION OF RESULTS

#### Introduction

At the outset of this research several specific objectives were identified. The overall objective of the research is to promote through an enabling pedestrian environment, a healthier community for seniors on SSI. A general focus of this nature entails drawing on different research specialties (health care, land use planning) and in a way cutting across traditional discipline boundaries. The goal is also in the tradition of applied geography. It attempts to understand the pedestrian mobility of the elderly and the perception of the relevant government agencies. To achieve this goal a set of more specific objectives were developed.

Specific research objectives were to determine the following:

- The importance of walking as a mode of transportation for seniors on SSI;
- Where seniors normally walk (i.e. on the side of the road, sidewalk, path, etc.);
- What barriers such as, potholes, uneven surfaces, poor lighting, are encountered when walking and if this obstruction resulted in a fall;

- The perceived safety of the pedestrian routes; the specific location of unsafe streets;
- The government agency responsible for pedestrian routes on the island; and,

The research also attempted to determine the role of government agencies as follows:

- The role they have in affecting pedestrian mobility;
- The policies that are in place to address elderly pedestrians;
- Whether or not the government agencies are meeting the needs of elderly pedestrians; and,
- The concept of managerialism as a means for understanding agency responses to the issue.

And finally, the study attempted to answer the question:

- What changes can be made to make the situation better?

This chapter will review these objectives and determine if the analysis meets these objectives and where future research is required.

### The Importance of Walking

Several questions in the questionnaire sought to determine the importance of walking for seniors on SSI. These included questions about car ownership, forms of transportation used, whether walking was their primary mode of getting around, how far seniors walk and why they normally walk. It is necessary to study the importance of walking to determine the

number of seniors that are dependent on walking, for getting around. Obviously, if more seniors are found to be dependent on walking then the addressing the overall issue of pedestrian mobility becomes more critical. From the data, various conclusions can be drawn about the importance of walking.

It has already been noted that 11 seniors or 25% of the sample said that they considered walking to be their primary mode of transportation. Of these, five were male and six female or 35% of the males and 20% of the females sampled. Therefore, a higher percentage of males said they considered walking to be their primary source of getting around compared to females. One statistic that is worth noting is that the average age of the 11 respondents to this question is somewhat lower than the average of the sample. This is noteworthy because it is generally considered that as seniors age they are less likely to drive therefore it would be assumed that the average age of this group would be older than the sample (Hodge 1990; Smith 1991). One explanation to this, which was referred to earlier, is that the terrain and topography on SSI makes it difficult for seniors to get around especially older seniors or those that use mobility aids. Therefore, it may only be the younger seniors who find it not as difficult to get around for which walking is their preferred mode of transportation.

In order to explore further the importance of walking, seniors were asked if they owned a car. Nine seniors said they did not own a car or about 20 % of the sample. When compared to another study done on the shopping patterns of seniors in Winnipeg, this figure appears to be very low (Smith 1984). Smith found that about 95% of the respondents over 60

did not own a car compared to about 12% for those people younger than 60. However, it should be recognized that it is difficult to compare results from an urban community such as Winnipeg and the rural village community of SSI. As a result, more information is needed to determine the significance of these results. For example, Smith found that income was a significant factor in determining car ownership in Winnipeg, however the current research on SSI did not take incomes into account.

It was clear from the results that the car was the preferred form of transportation for seniors on SSI. Rides with friends or family was the next most preferable form of transportation. This is not surprising since one of the limiting features, in terms of mobility on SSI, is the lack of public transportation. There is no public bus service on the island and only one taxi in operation. By virtue of the limited public transportation, seniors would have to rely on rides from friends or family as an important mode of transportation and an alternative to the automobile. SSI is also a fairly rugged island with steep roads in many locations and it encompasses a large area when compared to a compact city such as Victoria. Distance and topography are also limiting factors to elderly pedestrians.

Seniors were asked about why they normally walked. It is important to find out this information to determine further the types of pathways needed to serve seniors. For example, if it is determined that most seniors walk to get groceries than walkways could be better designed to accommodate grocery carts. The most common response to this question was 'for exercise' followed by 'to get to services'.

Finally, seniors were asked about the distance that they normally walked in a day.

One summary that can be drawn from these results is that, based on the responses to this question, on average men walked about 0.6 kilometers further than women. This can be related to the fact that more men said that walking was their primary form of transportation than women; meaning that they generally walk more than women. However, more information is needed to determine the significance and consistency of these results.

### Where do seniors normally walk?

The information from the maps and general comments were used to identify the often-used pedestrian routes in the Ganges area. Clearly, the most used pedestrian route was Lower Ganges Road from the Ganges Village Market area to the town core area. This corridor serves as an important connection between these two commercial areas. It has already been identified that seniors generally walk on the side of the road so we now know that many seniors are walking on the side of Lower Ganges Road in order to get around. Unfortunately, another issue concerning Lower Ganges Road is that a number of seniors described unsafe features on this street, ranging from too much traffic to poor placement of crosswalks.

Another area that was identified by a number of seniors as well used was the area in the core of Ganges. Specifically, streets such as Hereford and McPhillips Avenues and Fulford Ganges Road were indicated as often-used pedestrian routes. This area is one of the few areas on the island that has curbs and sidewalks. It is also the location of the financial

institutions, Thrifty's grocery store, the hardware store and most of the restaurants on the island are also in this area.

The primary purpose for wanting to identify often-used pedestrian routes is to look then at what can be done to make them safer and barrier free. It also helps to focus the attention of the government agencies on a particular area.

### Barriers to pedestrian mobility

The results from the questionnaire on the use of mobility aids indicates a significant number of seniors have some form of personal barrier to pedestrian mobility. About 20% of seniors said they used some form of mobility aid such as a cane in order to walk. For seniors that use a mobility aid to get around, it is especially important to have well planned and maintained walking routes.

While mobility aids represent a personal barrier to moving around, other external barriers such as potholes, uneven surfaces and busy roads were also indicated as important barriers to walking. Since it has already been determined that most seniors walk on the side of the road and we know that the roadsides are often not paved, it is not surprising that the two most significant barriers to pedestrian mobility were uneven surfaces and encountering too much traffic.

In order to determine if there are barriers to pedestrian mobility, it was first necessary to find out where seniors walk. For example, do they walk on the side of the road or on a

walkway or path? The results from the questionnaire clearly indicate that seniors most often walk on the side of the road, in other words on the shoulder. This is also backed up by information from the maps and also from general comments. What this means is that elderly pedestrians are sharing the road with moving and parked vehicles and attempting to remain mobile on poorly maintained and inadequate shoulders. The majority of the shoulders in the Ganges area are soft or unpaved surfaces, which would make it even more difficult for those seniors that use a mobility aid, or for the very old to continue walking.

Another important result from the questionnaire is that a representative number of seniors said that they walked on a path or a walkway. This is significant because there are not many walkways or paths on the island so the ones that exist are being heavily used. It's also an indication that if there were more formal walking areas, that it's likely that they would be well used and frequented by seniors.

### Perceived safety of pedestrian routes

Seniors were asked if they felt safe getting around on foot on SSI with a range of responses from 'very safe' to 'not at all safe'. An analysis of the difference in perception of risk between males and females was completed in the previous chapter. The results of the chi-square analysis were inconclusive demonstrating that in terms of this study, there is no relationship between gender and perception of risk.

In answering the question on perception of risk, most seniors said they felt 'fairly safe' getting around by foot on SSI and three people said they felt 'very safe'. One could generalize that most seniors felt reasonably safe getting around on foot. However, further review indicates 12 people or about 30% of the respondents felt 'not very safe' and three people said they felt 'not at all safe' getting around by foot. Therefore, one could also summarize these responses by saying that more seniors felt unsafe or very unsafe getting around than those seniors whom felt very safe getting around.

### Specific location of unsafe streets

This study has already shown that Lower Ganges Road is one of the most used pedestrian corridors. Unfortunately, Lower Ganges Road is also identified by many seniors as an unsafe street. This could be because there are more seniors walking on this route, which means more people to see problems. Or, it could be because this is one of the few pedestrian routes available to seniors to get from one end of Ganges to the other. Or, it could be both. Clearly, there is a problem when a route is identified as both heavily used and a concern for safety.

While Lower Ganges Road had the greatest number of concerns noted, there were many other roads identified as having unsafe features. Generally, the unsafe features ranged from no sidewalks to narrow shoulders; too much traffic and unclear traffic and pedestrian routes.

The seniors were also provided with the opportunity to illustrate on a map the specific location of unsafe features. While only a small number of seniors chose to show these areas on the map, there were four areas indicated. The areas shown on the map were consistent with the questionnaire responses. However, the map allowed the seniors to illustrate exactly where the crosswalk should be. One area that was shown on the map that wasn't covered in the questionnaire is the intersection of Lower Ganges and Upper Ganges Roads, which one senior described as a "hazardous intersection".

### Government agency responsible for pedestrian routes

Seniors were asked which agency is responsible for walkways and pedestrian activity on SSI. The responses to this question indicated that seniors overwhelmingly believe that the MoTH is the agency responsible for pedestrian routes. However, this doesn't tell the whole story. From the interviews, it was also learned that each of the agencies has a role to play in this area.

The principal agencies for dealing with pedestrian issues are the MoTH and Islands Trust. The CRD's legislated role is limited to enforcing the accessibility requirements of the Building Code and this is done primarily on private property. However, the Building Inspector would be a good resource for technical matters such as width of sidewalks to better enable scooters and wheelchairs. The current roles of the two principal agencies, I believe, result in a gap in the delivery of service. MoTH is responsible for the nuts and bolts, for example, repairing and constructing the roads and shoulders that seniors walk on. The Islands Trust is limited to a policy role such as planning where seniors housing should be

located. There appears to be a gap or a lack of coordination in the planning of the walkways. Each agency could have a unique and effective role in the coordination and planning of walkways. For example, Islands Trust could identify pedestrian routes in their community-planning role and the MoTH has the resources to design and construct sidewalks. The difficulty lies in who would pay for the construction.

### Role of government agencies in affecting pedestrian mobility

The issue of the crosswalk between the SS Seniors for Senior's office and the Ganges Village Market is a good example of how these government agencies work and their different roles when dealing with a community concern. Due to limited parking at the SS Seniors for Senior's building, many people park their cars in the GVM parking lot, which then involves crossing Lower Ganges Road. Respondents feel that this is a safety issue and that one solution is for MoTH to install a crosswalk in this location. The seniors contacted MoTH's regional office as well as the Islands Trust politicians to express their concerns. The Islands Trust gets involved in facilitating a resolution to the issue by having meetings with MoTH. The CRD Building Inspector is also involved because of his knowledge around accessibility requirements.

Meetings and discussions are held with all of the parties to find a resolution to the issue. MoTH's technical staff conducts an analysis of the proposed location of the crosswalk and finds that due to insufficient sight lines and the speed of the traffic, that it would be unsafe to install a crosswalk. They are unwilling to consider reducing the speed limit through this area because, it would add a couple of minutes to the time it takes vehicles to

travel through Ganges. As a result, nothing has changed. The latest proposal is for the SS Seniors for Seniors office to relocate across Lower Ganges road so seniors can continue to park in the GVM lot but they wouldn't have to cross Lower Ganges Road.

Clearly, the government agencies need to play a bigger role in addressing the issue of elderly pedestrians. If each of the agencies put forth a concerted effort to improve pedestrian mobility, then there would be opportunity to affect change. All of the agencies could stand to be more informed and educated on this topic. Setting aside factors such as aging in place and seniors' independence, the financial savings in preventing one senior from falling are well worth these agency's efforts to better pedestrian mobility. In other words, total social costs are reduced and quality of life is improved.

### Policies that are in place to address elderly pedestrians

It is evident from the interviews that the Islands Trust is the only agency that has specific policies to address the needs of elderly pedestrians. These policies are found in the SSI Official Community Plan and deal with issues such as locating seniors' housing within areas that would enable walking to services and design considerations for senior's housing developments. The Accessibility Requirements in the Building Code, which is administered by the CRD Building Inspector are useful tools, however, the majority of the application of these requirements is for private property development.

The MoTH, which in my view could have the greatest affect on seniors' pedestrian mobility, does not have any specific policies relating to this issue. They are focused on the

safe movement of vehicular traffic and pay little or no attention to the needs of pedestrians. Even basic information, such as demographic trends is not researched or is ignored.

### Are government agencies meeting the needs of elderly pedestrians?

This is a difficult question to answer and the answer would also depend on who was being asked. From the point of view of the agency representatives I think they generally felt that they are doing what they can with their current legislation and the policies that they have in place. The Islands Trust coordinates the writing and completion of an Official Community Plan (OCP), which is essentially a blue print for future growth, so they have the ability to come up with long range policies to address issues. For example, with regard to seniors, the OCP targets areas where seniors' housing should be located and has some criteria for the design of seniors housing (Islands Trust 1998). However, there are no policies in the OCP that cover seniors and pedestrian issues. The MoTH representatives didn't suggest or allude to any policy changes to better meet the needs of the elderly. The CRD Building Inspector said that changes could be made to meet better the needs of seniors but those changes would likely have to come from the politicians.

Generally, I think the seniors felt that more can be done to improve their pedestrian mobility. In many of the general comments that were made one gets a sense of their frustration. For example, some seniors talked about moving off the island because of these mobility issues.

### What changes can be made to make things better?

There were many suggestions for change by the seniors as noted in the responses to the questionnaire. By far the majority of the comments were regarding the need for more sidewalks in the Ganges area. If this were taken into consideration with information that most seniors walk on the side of the road and that many seniors feel that this is a dangerous place to walk, then this would seem to be a legitimate need. More sidewalks, especially in the area between the GVM shopping centre and the town core area, would provide seniors with a safe place to walk thereby increasing their independence and sense of well being. More sidewalks would not only make it easier for seniors to get around but lowering the number of falls would benefit the entire community. These suggestions point to the need to develop a strategic plan for making Ganges more “pedestrian friendly”.

Several seniors also commented that there should be more paved shoulders. While this is a good suggestion, especially because most seniors walk on the shoulder, it is not an ideal solution. Pedestrians would still have to manage busy traffic, parked cars and others such as cyclists that use the shoulder. Paved shoulders might be a solution for some secondary or less traveled routes or possibly an interim solution until sidewalks can be installed.

The need for crosswalks, and specifically a crosswalk between the SS Seniors Service Society building and the GVM shopping centre, was mentioned in the questionnaire and with the map. There appears to be a valid need for a crosswalk in this location. For example, many seniors park in the GVM parking lot and then cross Lower Ganges Road in order to get

to and from the SS Seniors Service Society building. However, there are technical reasons such as reduced site lines that MoTH staff has for not constructing a crosswalk in this location. MoTH has the ability to lower the speed limit in this location, which would then enable its construction but this would conflict with their mandate to efficiently move vehicles.

A number of seniors commented on the need for some form of public transportation on the island. While public transportation would help seniors get around in the community the reality is that SSI is a fairly large, sparsely populated area which makes it difficult to support such a service. Previous research has suggested that providing public transportation to rural areas requires significant subsidies (Hodge 1989 & Hodge 1984).

Another area of general concern was the movement of vehicular traffic especially in the Ganges area. Issues such as the speed of cars, poor driving skills and parking of vehicles were raised. The MoTH officials also mentioned conflicts that seem to arise when there is a built up town area within a rural community. This doesn't fit into any policy or framework for MoTH to deal with. Clearly, in order for Ganges to be more pedestrian friendly, something needs to be done about the speed and number of cars in the area. MoTH and the Islands Trust have identified an alternate route for vehicles around much of Ganges but this is a very long-term project. These agencies have also discussed some form of "traffic" calming in the Ganges area to slow vehicles down and improve pedestrian movement but little progress is being made.

## Chapter 8

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# CONCLUSIONS

### Introduction

The issues confronting elderly pedestrians on SSI are unusual in the region. Few other communities in the CRD have such a high percentage of seniors and those that do, such as Sidney and Oak Bay, are well-established municipalities with responsibility for roads and sidewalks and the means to raise money for infrastructure if there is an expressed need. It is also well recognized that those two communities have a high percentage of seniors so there is some sensitivity and understanding when considering such things as walkways.

This study has taken a micro-geographic approach to seniors and pedestrian issues on SSI together with the governance and administrative structure that exists for a rural unincorporated community. It is a first attempt to assess the needs of elderly pedestrians, to determine what is being done to meet those needs and to get a better understanding of what needs to be done to make things better. Specific research objectives or goals were outlined at the beginning of this study and it is the purpose of this chapter to determine if those goals were reached.

### Assessing the Research Objectives

The first goal of the study was to evaluate the importance of walking as a mode of transportation for seniors on SSI. The research found that 25% of the sample considered walking to be their primary mode of transportation and another 20% said they didn't own a car. While this data is useful, without a comparison study of similar scope, it is difficult to determine the relative significance of the findings.

The next research objective was to determine where seniors normally walk in their local travel around Ganges. The research found that Lower Ganges Road between the GVM shopping centre and the Ganges core area was a very heavily used pedestrian route, which was not unexpected. A number of other important walking routes were also identified. This research objective was fulfilled however it is necessary to move beyond simple identification and actually implement a plan to upgrade these routes.

The next research objective was to review the barriers to pedestrian mobility. It was determined through this objective that a significant number of seniors use a mobility aid to get around (personal barrier) and that barriers such as pot holes, uneven surfaces and busy roads (external barrier) negatively impact the ability of seniors to move around. I believe that this objective was achieved, as there was abundant useful data and information to review.

Seniors' perceived safety of pedestrian routes was the next research objective. The differences in perception of risk between males and females were analyzed to determine if

there was a relationship between gender and perception of risk. Overall it was summarized that seniors feel more unsafe than safe in relation to mobility. As a first attempt, this is a useful analysis however more research is necessary to assess better perceptions or attitudes toward pedestrian safety.

The next research objective was to look at the specific location of unsafe streets. Information was received through the questionnaire as well as by illustrating on a map and included names of streets, locations of hazardous intersections and crosswalks, and unsafe features. The research found that while Lower Ganges Road is one of the most used pedestrian corridors, it was also identified as one of the more unsafe streets. This research objective was reached and many of the recommendations for action are based on the data from this objective.

One of the main objectives of the research was to gain more information on the government agency responsible for pedestrian routes on SSI. Interviews were conducted with the three main agencies involved in pedestrian mobility: Islands Trust, CRD Building Inspection and the MoTH. This objective was attained and it was determined that MoTH and Islands Trust need to work more closely to develop initiatives such as a strategic pedestrian plan for the Ganges area.

The role of government agencies in affecting pedestrian mobility was the subject of the next research objective. It was determined through this study that all government agencies need to have a greater role in effecting pedestrian mobility. The three government

agencies that were the focus of this study each have unique strengths and everyone would benefit if they worked together to alleviate issues related to elderly pedestrians.

The next research objective focused on the policies that are in place to address elderly pedestrians. A review of the relevant policies of three government agencies determined that the Islands Trust was the only one that has specific policies related to elderly pedestrians. The CRD Building Inspector deals primarily with private property issues and the MoTH pays little or no attention to the needs of elderly pedestrians.

Are the government agencies meeting the needs of elderly pedestrians? This was the question of the next research objective. There was abundant data from both the government agencies and seniors to evaluate this question. From the government point of view they felt they were doing what they can and from the seniors point of view more can be done to better meet their needs.

Most of the respondents to the questionnaire provided suggestions as to what changes can be made to make things better. The suggestions for change ranged from installing more sidewalks in Ganges to paving more shoulders. There were several comments regarding the need for public transit and many seniors were concerned about the speed and movement of vehicular traffic.

The overall objective of the study was to promote an enabling and healthy pedestrian environment for seniors on the island. This objective is based on the belief that a supportive pedestrian environment will further seniors' independence, prevent falls and allow seniors to

age in their community. Ultimately this benefits all members of the community. Not only will it be a better place to walk for everyone but also by having more seniors live in the community it will add to its diversity and promote a sense of pride in the community.

It has already been mentioned in different areas of this study about the benefits of having a positive walking environment for seniors to move around in. These benefits range from tangible factors such as financial savings to intangibles such as permitting seniors to live a more independent life style. These benefits can also be extended to all members of the community with concepts such as “universal design” being more widely accepted. Universal design addresses the scope of accessibility and suggests making all elements and spaces of the environment usable by most people, regardless of their ability (University of Manitoba 1998). For example, improvements that are made to better seniors’ mobility will also help all residents of the island including those with disabilities; parents pushing baby strollers or a person that requires the temporary use of crutches.

This study has furthered the objective of promoting a healthier pedestrian environment in many ways. Through discussions about this topic with seniors and the agency representatives, it has brought this issue to the attention of some and highlighted the need for studies such as this to others. The first step in promoting change is identifying the problem or the issues and I think the results from the study have done that. Clearly there are issues that need to be addressed when there are very few policies focusing on a growing seniors population living in a rural area. The issues seniors are confronted with include: having to walk on the side of roads that are unpaved and not constructed for pedestrians;

sharing poor road surfaces with an increasing number of cars; and, not being able to determine easily who they should call if there is a problem with the road right of way. These are just some of the issues that have been identified in this study. The next chapter will identify areas that should be subject to further research as well as some suggestions for action that are required to continue to promote a healthy environment for elderly pedestrians.

### Summary

With municipal incorporation looming in the near future, SSI will continue to change. Incorporation will change many aspects of living on the island and it could hold the key to improving the pedestrian environment for its senior residents. It is hoped that this study will provide some information to benefit seniors living on the island and those considering a change of pace in the future.

At the outset, specific research goals were stated for this study with the overall objective to promote through an enabling environment a healthier community for seniors on SSI. This study was a first attempt at identifying the needs of elderly pedestrians living in a rural village environment and also took into account the unique governance structure of SSI and the impact of this structure on pedestrian mobility. While most of the goals and objectives for this study were reached, the purpose of the next chapter will be to identify areas for further research and action.

## Chapter 9

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# RECOMMENDATIONS FOR FURTHER ACTION AND RESEARCH

### Introduction

At the beginning of the study a number of objectives concerning research into seniors' mobility were identified and data was collected to explain or expand on the objectives. However, some of the objectives were only partially fulfilled and as a result this chapter will identify areas that require additional research. It is important to for a study to elaborate on areas of further research in order to ensure that the topic is covered properly. Also, with any study additional objectives will be identified as the study progresses, these will also be discussed.

As well as making recommendations for further research, I will also make recommendations for action. These recommendations may be for the agency representatives or for the seniors themselves and will focus on a specific initiative to better meet the needs of the elderly or to improve the current pedestrian environment.

### Recommendations for Further Research

The total number of respondents which was 44 for the questionnaires and 29 for the maps represents just over 3% of the total population of seniors on SSI. While the sample size is adequate for this study and still makes the research findings relevant, a greater number of seniors are required to validate the conclusions. This study may be regarded as a pilot study for comparisons by further research.

While SSI has a high percentage of seniors, there are very few seniors' organizations on the island. For the purpose of this research, the Salt Spring Seniors for Seniors organization was the primary source for contacting seniors to complete the surveys. Future research should attempt to obtain a broader cross-section of the senior's population by contacting other organizations or seniors not affiliated with an organization.

Maps are a commonly used tool for geographers and at the beginning of this research it was believed that they would provide information that would be useful for this study. In particular, GIS is being used more frequently as a tool in community research projects (Dillon & Lemar, 2000). As a result, maps were used as one method for receiving input from seniors. However, as noted above fewer seniors completed the maps compared to the questionnaire. Also, the respondents to the maps did not provide much detail or information in their descriptions. I still believe that maps are a useful tool and that GIS in particular can be used to the benefit of studies such as this. However, for better results more detailed

instructions may be necessary or a monitor or interviewer may be needed to assist with the completion of the maps.

Not all seniors are fit and able to walk to get around in a community. More and more seniors are using scooters or wheelchairs to maintain their independence and mobility as long as possible. While this study did not seek to exclude those who use scooters, none of the seniors in the sample were in this category. With scooter use increasing, further research should look at the special needs of those seniors who need this type of mobility aid. For example, revisions may be necessary to the Highways Act to accommodate scooter users.

This study has reviewed the effect of government representatives on promoting a safe and enabling pedestrian environment for seniors. With SSI being an unincorporated area, it is more difficult for seniors to determine whom they should call for help and ultimately who is responsible for pedestrian issues. At the time of writing, SSI is undergoing an incorporation study to assess whether or not it is time for the community to vote to become a municipality. This would have an impact on the provision of services and the responsibility for infrastructure such as roads. It would be timely for research to be conducted into the impacts of incorporation on seniors and pedestrian issues.

### Recommendations for Further Action

Currently, Islands Trust has a number of advisory committees providing recommendations to the Local Trust Committee on topics ranging from design to agriculture. With the high percentage of seniors living on the island, it would seem to make sense that

they should also have a Seniors' Advisory Committee. This committee could meet on an as needed basis and review major development applications, changes to traffic patterns and the location of crosswalks. They could also work on long range policies such as the formulation of a pedestrian plan for Ganges. A representative from the MoTH, CRD Building Inspector, RCMP or the Capital Health Region could be assigned to attend committee meetings when required.

There are several ways of funding a study to review a pedestrian plan for Ganges. Currently, there is funding available from the Ministry of Municipal Affairs and Housing through the BC Neighbourhood Enhancement Program. The program works with local governments to encourage community involvement in projects that include accessibility solutions (Ministry of Municipal Affairs 1998). The Seniors Advisory Committee could investigate available funding to initiate different programs.

It would appear that the three agencies involved in this study require more information or some form of education covering the positive affects of a better pedestrian environment for the elderly. In particular, I think that the MoTH representatives working on SSI require more information pertaining to such things as traffic calming and the costs of a fall related injury to a senior opposed to spending more on a better-maintained pedestrian network. Possibly, if they are better informed they might change their view of SSI and because of the high percentage of seniors treat it differently then other rural areas.

A simple solution to some of the problems on the island is to have a dedicated phone number for seniors and all people to call if there is a problem such as pothole on the side of

the road. Ideally, one staff person should also be assigned to deal with these calls. This is a practical and cost effective method of dealing with common problems.

The MoTH could undertake measures such as installing traffic signs that alert drivers that there are pedestrians using the side of the road. This could be done on routes such as Lower Ganges Road where there is heavy vehicular traffic and well-used by pedestrians. Lower speed limits would also be an effective measure to improve safety for elderly pedestrians

### Summary

These are a few of the opportunities for research and action, identified through this study, that would further the goal of having a safe pedestrian environment for seniors on SSI. It has already been recognized that a high percentage of the population on SSI is over the age of 65 and it is expected that as the 'baby boomers' start to retire that this number will increase dramatically (Westland Resource Group, 1996). The decision to begin some of these recommendations for action or to further study this issue must be made within the next few years because the number of seniors facing pedestrian mobility problems will only increase.

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## **Appendix 1 – Questions for Managers**

Describe the primary function of your office on Salt Spring Island?

Does your office give any consideration to elderly pedestrians either through policies or programs?

Do you consult with other government agencies or organizations with regard to elderly pedestrians?

Do you take demographic trends into consideration when developing programs and policies?

Has a senior or senior's organization ever expressed concern to you about walking conditions on SSI?

Are you aware of what other municipalities or regional districts are doing with regard to this issue?

Anything else to add?

## Appendix 2 – Questionnaire

### Identifying the Patterns of Pedestrian Mobility of the Elderly on Salt Spring Island, BC - Questionnaire

1. Gender

Female \_\_\_ Male \_\_\_

2. Age

64 or under \_\_\_  
 65 – 69 \_\_\_  
 70 – 74 \_\_\_  
 75 – 79 \_\_\_  
 80 - 84 \_\_\_  
 Over 85 \_\_\_

3. Do you use a mobility aid in order to get around?

Cane or crutches \_\_\_  
 Scooter \_\_\_  
 Walker \_\_\_  
 Wheelchair \_\_\_  
 Other \_\_\_

4. Do you consider walking to be your primary mode of transportation?

Yes \_\_\_ No \_\_\_

5. Do you own a car?

Yes \_\_\_ No \_\_\_

6. What other forms of transportation do you use?

Car \_\_\_  
 Public Transportation \_\_\_  
 Bicycle \_\_\_  
 Rides with friends or family \_\_\_  
 Other \_\_\_

7. Why do you normally walk?

For exercise \_\_\_\_  
 To get to services \_\_\_\_  
 To buy groceries \_\_\_\_  
 To socialize \_\_\_\_  
 Other \_\_\_\_

8. How far do you normally walk in a day?

< 1km \_\_\_\_  
 1 – 3kms \_\_\_\_  
 4 – 6kms \_\_\_\_  
 7 – 9kms \_\_\_\_  
 10kms or more \_\_\_\_

9. Have you encountered barriers while walking?

Cracked sidewalk \_\_\_\_  
 Pothole \_\_\_\_  
 Poor lighting \_\_\_\_  
 Uneven surface \_\_\_\_  
 Badly placed crosswalks \_\_\_\_  
 Overgrown trees or roots \_\_\_\_  
 Vehicles parked on walkway \_\_\_\_  
 Too much traffic or busy road \_\_\_\_  
 No curb cut \_\_\_\_  
 Other (s) \_\_\_\_

10. Do you normally walk:

On the side of the road \_\_\_\_  
 On a path or walkway \_\_\_\_  
 On the street \_\_\_\_  
 Other \_\_\_\_

11. Have you ever slipped, tripped or fell while walking?

Yes \_\_\_\_ No \_\_\_\_

a) If Yes, what caused you to slip, trip or fall:

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b) Did you report the slip, trip or fall to anyone or to any agency?

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c) Did you require medical treatment as a result of the accident?

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12. In your opinion, how safe is it for you to get around on foot in your community?

Very safe \_\_\_\_  
 Fairly safe \_\_\_\_  
 Not very safe \_\_\_\_  
 Not at all safe \_\_\_\_  
 No Opinion \_\_\_\_

13. Do you think there are any streets or parts of streets that are particularly unsafe for pedestrians?

a) Name of street (s)

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b) Unsafe feature

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14. Have you ever made a complaint to anyone in authority about the conditions for pedestrians around here?

a) Yes \_\_\_\_ No \_\_\_\_

b) If Yes, to whom:

Local Trustees \_\_\_\_  
 CRD Regional Director \_\_\_\_  
 Local MLA \_\_\_\_  
 Local MP \_\_\_\_  
 Police \_\_\_\_  
 The Press \_\_\_\_  
 Islands Trust staff \_\_\_\_  
 Ministry of Transportation and Highways staff \_\_\_\_

Capital Regional District staff \_\_\_\_  
Other \_\_\_\_

c) What was the complaint about?

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15. What agency is responsible for walkways and pedestrian activity in your community?

Islands Trust \_\_\_\_  
Ministry of Transportation and Highways \_\_\_\_  
Capital Regional District \_\_\_\_  
Other \_\_\_\_

16. In your opinion, what changes should be made to make it easier for seniors to get around in your community?

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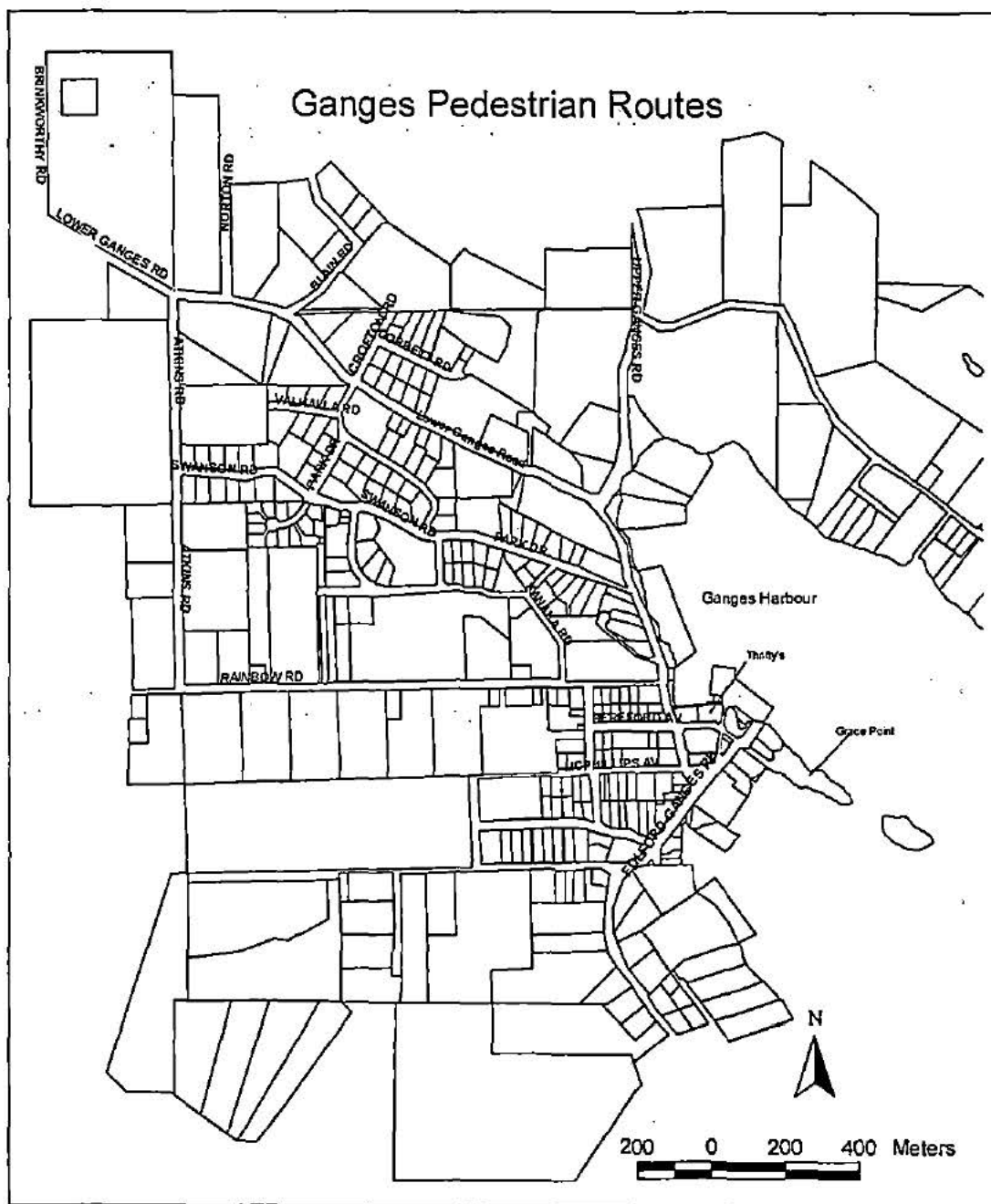
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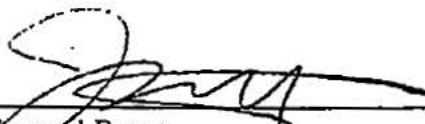


### CERTIFICATE OF APPROVAL

<u>Principal Investigator</u> Gerald Hamblin Graduate Student	<u>Department/School</u> GEOG	<u>Supervisor</u> <del>Dr. G. Hamblin</del> Dr. C. Wood.	
<u>Co-investigator(s):</u> N/A			
<b>Title: Identifying the Patterns of Pedestrian Mobility of the Elderly on Salt Spring Island, BC</b>			
<u>Project No.</u> 063-00	<u>Start Date</u> 29 Feb 00	<u>End Date</u> 28 Feb 01	<u>Approval Date</u> 29 Feb 00

#### Certification

This is to certify that the University of Victoria Ethics Review Committee on Research and Other Activities Involving Human Subjects has examined the research proposal and concludes that, in all respects, the proposed research meets appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Subjects.

  
 J. Howard Brunt,  
 Associate Vice-President, Research

**This Certificate of Approval is valid for the above term provided there is no change in the procedures. Extensions/minor amendments may be granted upon receipt of "Request for Continuing Review or Amendment of an Approved Project" form.**

## Appendix 4



a) The Ganges core area has sidewalks and crosswalks and is the most “pedestrian friendly” area on the island.



b) Another illustration of the walkways in the Ganges core area.



c) A pedestrian walking along the shoulder of Lower Ganges Road not only has to navigate puddles and potholes but must also watch for vehicular traffic. The shoulder in this location is about 2.5 feet in width.



d) Another example of a pedestrian sharing Lower Ganges Road with vehicles.



e) On this street in the Ganges core area, the only option for pedestrians is to walk in the road. There is no sidewalk or walkway. Pedestrians must be careful of parked vehicles pulling out, traffic on the road and cyclists.



f) An illustration of a sidewalk in the core area that ends leaving pedestrians to walk on the road between parked vehicles and oncoming traffic.



g) The intersection of Upper Ganges and Lower Ganges Roads was identified as hazardous because of the size of the intersection, the lack of vehicular control, and no crosswalk.



h) Lower Ganges Road near the SSI Seniors for Senior's office where many seniors would like to have a crosswalk installed. The GVM shopping complex is to the left of the photo.

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British Columbia

Author:



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