

Adapting to the Changing Transportation Needs of Older Adults:
Coordinating Transportation Services in Victoria B.C.

By:
Darin Ramsay

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

Master of City Planning

Department of City Planning
University of Manitoba
Winnipeg, Manitoba

© December 2008

**THE UNIVERSITY OF MANITOBA
FACULTY OF GRADUATE STUDIES

COPYRIGHT PERMISSION**

**Adapting to the Changing Transportation Needs of Older Adults:
Coordinating Transportation Services in Victoria B.C.**

BY

Darin Ramsay

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of

Manitoba in partial fulfillment of the requirement of the degree

Of

Master of City Planning

Darin Ramsay © 2008

Permission has been granted to the University of Manitoba Libraries to lend a copy of this thesis/practicum, to Library and Archives Canada (LAC) to lend a copy of this thesis/practicum, and to LAC's agent (UMI/ProQuest) to microfilm, sell copies and to publish an abstract of this thesis/practicum.

This reproduction or copy of this thesis has been made available by authority of the copyright owner solely for the purpose of private study and research, and may only be reproduced and copied as permitted by copyright laws or with express written authorization from the copyright owner.

For Hazel and Evelyn

Dedication

There are a number of individuals I wish to thank for seeing me through this long drawn out process. My parents have instilled in me a wonder for learning and have always encouraged me to do my best. My sister has put so much effort into proof reading this practicum, any mistakes hereafter cannot be attributed to her, they are mine alone. My brothers have kept hounding me to finish this project. To my advisors, Ian Wight, Michael Dudley and Gina Sylvestre, thank you for all the time and effort you put into helping me through this project. To all the people I've met over the past few years, thank you for the good times and late nights. To Roxanne, you're my rock. Thanks for all the patience and understanding. To my grandmothers, Hazel and Evelyn, who have faced their older years with grit, determination and sense of humour; this thesis is dedicated to you.

Abstract

Canada has a growing population of older adults. While most drive, there are a growing number of non-driving older adults as well as a pressing need to provide sustainable transportation options to all older adults outside of the personal automobile. This practicum is a study on the transportation needs of non-driving older adults and how to provide them with the highest level of service using the existing transportation infrastructure. Specifically, the study looks into how different organizations provide transportation and where coordination and the sharing of resources could provide a higher level of service at a reduced cost. This practicum develops and proposes ways in which existing transportation providers could better target the changing transportation needs of older adults.

Table of Contents

CHAPTER 1: Introduction.....	1
1.1. Background	1
1.2. Problem Statement	2
1.3. Purpose.....	5
1.4. Research Methods	7
1.5. Ethics.....	9
1.6. Significance.....	9
1.7. Assumptions.....	11
1.8. Limitations	11
1.9. Chapter Outlines.....	13
CHAPTER 2: Literature Review.....	16
2.1. Introduction	16
2.2. Terminology.....	16
2.2.1. Older Adults	16
2.2.2. Mobility.....	17
2.2.3. Accessibility	18
2.2.4. Victoria.....	18
2.3. Issues	19
2.3.1. Aging Population.....	19
2.3.2. Living Arrangements.....	21
2.3.3. Mobility and Accessibility	24
2.3.4. Driving and Driving Cessation.....	26
2.3.5. Older Adults and Transportation.....	29
2.4. Theoretical Framework	34
2.4.1. Wicked Problems	35
2.4.2. Sustainable Transportation.....	40
2.4.3. Coordinated Transportation.....	43
2.4.4. Role of the Planner.....	45
2.5. Precedent	49
2.5.1. Urban/Suburban Coordinated Transportation	49
2.5.2. Suburban/Rural Coordinated Transportation	51
2.5.3. Rural Coordinated Transportation.....	52
CHAPTER 3: Research Methods.....	55
3.1. Surveys	55
3.2. Interviews	56
CHAPTER 4: Data Analysis.....	60
4.1. Survey.....	60
4.1.1. Types of Organizations Surveyed	60
4.1.2. Transport Provision Requirements.....	61
4.1.3. Workers and Volunteers.....	62
4.1.4. Service Area and Hours.....	63
4.1.5. Trip Booking	65
4.1.6. Vehicles Trip Provision and Capacity.....	65

4.1.7. Funding.....	66
4.1.8. Promotion.....	67
4.1.9. Relationships with Other Providers.....	68
4.1.10. Summary.....	68
4.2. Key Informant Interviews: Set One.....	69
4.2.1. Transportation Needs.....	69
4.2.2. Transportation Modes.....	70
4.2.3. Maintaining Mobility.....	71
4.2.4. Transportation Likes.....	75
4.2.5. Transportation Dislikes.....	77
4.2.6. Coordinating and Arranging Transportation.....	80
4.2.7. Reasons Behind (Im)mobility.....	82
4.2.8. Changes in Mobility.....	84
4.2.9. Improvements to Transportation Services.....	86
4.2.10. Issues Associated with Not Driving.....	88
4.2.11. Future Transportation Needs.....	89
4.2.12. Summary.....	91
4.3. Key Informant Interviews: Set Two.....	91
4.3.1. Feedback on Role of the Planner.....	91
4.3.2. Feedback on Coordinated Transportation.....	93
4.3.3. Summary.....	94
CHAPTER 5: Conclusions, Recommendations and Further Study.....	96
5.1. Conclusions.....	96
5.2. Recommendations.....	99
5.2.1. Identifying needs and transportation providers.....	99
5.2.2. Coordinating Transportation.....	102
5.3. Vision of a Coordinated Transportation System.....	104
5.4. Directions for Further Study.....	104
Bibliography and Other Relevant Readings.....	106
Appendices.....	114
Appendix A: Survey Questions.....	114
Appendix B: Interview Questions.....	117
Interview Instrument: Set One.....	117
Interview Instrument: Set Two.....	117
Appendix C: Consent Forms.....	119
Survey Consent Form.....	119
Interview Consent Form.....	121
Appendix D: Ethics Approval.....	123

CHAPTER 1: Introduction

Canada has a growing population of older adults. While most drive, there are a growing number of non-driving older adults as well as a pressing need to provide sustainable transportation options to all older adults outside of the personal automobile. This practicum is a study on the transportation needs of non-driving older adults and how to provide them with the highest level of service using the existing transportation infrastructure. Specifically, the study looks into how different organizations provide transportation and where coordination and the sharing of resources could provide a higher level of service at a similar or reduced cost. This practicum develops and proposes ways in which existing transportation providers could better target the changing transportation needs of older adults.

1.1. Background

Canadian society is rapidly aging. In 2005, older adults constituted over 13% of the population. The older adult population in Canada is expected to double over the next 25 years and is expected to nearly triple over the next 50 years. By then older adults will make up over 25% of the total population (Turcotte and Schellenberg 2007). As the general population becomes progressively older, a number of problems surface. The first major problem is the need for fewer working individuals to support a larger retired population. One easy and ideal way to support older adults at a lower cost is to enable them to live in their homes. This is often described as ‘aging in place’.

Aging in place enables individuals to maintain their social networks, promotes self sufficiency, encourages interdependence between friends and family, helps prevent

social isolation, and helps maintain quality of life. In addition to providing these benefits, it also prevents the negative effects of moving, which can include: loss of social networks, reduced independence, confusion and reliance on other people (Lawler 2001).

A major component of enabling individuals to age in place is maintaining mobility and the accessibility of services, social networks, entertainment and other desired destinations. Mobility means older adults can travel without relying on family and friends. Accessibility means that all desired destinations can be reached and used, regardless of ability. The incidence of driving a car declines with age and it is not replaced by an increase in alternative forms of travel. Rather, as people age, they progressively curtail activities that take place outside of the home, and therefore travel less (Gillan and Wachs 1976, Rosenbloom 1998 and Metz 2003). As a result, the impetus for this practicum becomes how best to replace personal car travel with other forms of transportation to enable people to live as long as possible in their own homes. This will save resources as fewer workers support the growing population of older adults.

1.2. Problem Statement

An important consideration in maintaining mobility and accessibility is that most older adults eventually stop driving. As they age, they give up driving in increasing numbers. Very few older adults plan for the eventuality that they may cease driving, either by choice or extenuating circumstances. Driving is considered by most people to be closely related to wellbeing, mobility and autonomy. Unplanned driving cessation is often associated with depression, reduced out of home activities, isolation and a lower quality of life. This in turn can influence health. Most individuals who ceased driving did

so for health reasons, though the majority of drivers have no intention of giving up their cars (Liddle et al 2004).

Victoria is a small city of about 366,000 people located on the southern tip of Vancouver Island. Its location next to the Pacific Ocean gives it a mild climate, especially when compared to the rest of Canada. The weather seldom drops below freezing, and its location in a rain shadow means that the annual rainfall is less than other west coast towns and cities. As a result of this mild weather, Victoria attracts a sizable number of retirees every year. Victoria is particularly suited to this study not only because of the number of older adults living here, but also because of the variety of densities and built form. The city consists of 15 separate municipalities that run the gamut from rural, large lot single family homes, to low density suburban, to medium density suburban, to small towns with low and high density, to dense old neighbourhoods, to high density urban living.

In addition, about 17.2% of the population of Victoria was over 65 in 2007. As a comparison, 14.1% of the population of B.C. is over 65 and 13.4% of the population of Canada is over 65. Further breaking these numbers down, we can see that not only does Victoria have a large percentage of older adults, it also has a considerably larger percentage of older adults between 75 and 84, and over 85 than B.C. or Canada. The following table shows the breakdown by age group:

Older Adult Population in Victoria, British Columbia, and Canada						
2007 census projections ¹		65-74	75-84	85+	Total older adult pop.	Total Population
Victoria	Total	27,945	23,423	11,509	62,877	366,162
CRD	%total	7.63%	6.40%	3.14%	17.17%	
BC	Total	319776	214701	83340	617817	4,380,256

¹ All census numbers come from: <http://www.bcstats.gov.bc.ca/>.

	%total	7.30%	4.90%	1.90%	14.10%	
Canada	Total	2,322,503	1,545,458	555,443	4,423,404	32,976,026
	%total	7.04%	4.69%	1.68%	13.41%	

Because of this larger percentage of older adults in the higher age groups, developing transportation alternatives to the personal automobile becomes increasingly relevant.

There are a number of transportation providers in any city, and Victoria is no exception. There are numerous volunteer societies, taxi companies, senior homes & centres and other companies and organizations providing transportation. Different service providers do not always have easily understandable, reachable, affordable or efficient transportation services. In addition to this, many transportation needs are underserved while other needs are over-served. This constitutes a large misallocation of scarce resources that does not fully address the transportation needs of older adults.

There are two major shortcomings to current transportation provision in Victoria: there is little to no coordination between different organizations; and older adults are not normally involved in the planning of transportation services. The lack of coordination between transportation providers is inherent in most systems that involve individuals acting in their own self interest. To make coordination work, objectives must match and trust must be built. Because of the difficulty in building trust and the varying ways in which organizations fund transportation, coordination rarely happens. By creating a coordinating transportation system, with numerous parts working together, the levels of access and mobility will be greater than if the parts acted individually (Burkhardt et al 2003).

Coordinating transportation services is an important part planning an appropriate approach to transportation provision. A coordinated approach to planning means that

planners are not simply addressing one problem with one solution; they are looking at the entire trip making process, from origin to destination and addressing as many problems at once. They are bringing users and providers together to extract the most efficiency possible from existing resources. In this type of system, mobility and accessibility mean people come first, not vehicles. To do this, planners need to understand the underlying problems as much as possible, though true comprehension of problems is impossible (Hallsmith 2003, Hawken et al 1999, Johnson 2001, Lindblom 1959).

Transportation planning in Victoria suffers from the same ailments that affected city planners a generation ago, namely the amount of public involvement in planning and decision making is minimal. Since Canadian society is heavily based around the car, transportation planning decisions revolve mostly around managing traffic flows. Personal planning before making a trip requires little to no time. When relying on publicly accessible forms of transportation, planning decisions often need to be made well in advance of the actual trip being taken. To make these decisions, transportation options must be accessible, affordable, available, adaptable and acceptable. To achieve these requirements, transportation professions need input from all vested parties.

1.3. Purpose

This practicum is a study of how planners can address the barriers to mobility and accessibility among older adults. It is especially concerned with how multimodal transportation systems directed at older adults, especially those who do not drive, can be coordinated to provide a more comprehensive system. Transportation is currently provided in piecemeal fashion in Victoria with little to no coordination between various agencies. A coordinated approach combined with comprehensive public participation

could better target need and provide more appropriate services while saving money and resources. Victoria, BC will be used as a case study for this practicum, but the results could be applied to any North American city.

The main mode of transportation for older adults in Canada continues to be and will remain for the foreseeable future, the personal automobile. Some 90% of older adults still drive themselves, or are a passenger in a car when making a trip (Liddle et al 2004 and Metz 2003). Most people do not plan for the possibility and often inevitability of not being able to drive themselves to destinations.

The planner can mitigate the situation by providing transportation options for older adults after the cessation of driving. Mobility and accessibility must be maintained in the most seamless way possible to prevent older adults from curtailing their activities of daily living. This can be accomplished through a systematic appraisal of existing transportation providers and a continuous assessment of transportation needs among older adults. Using these inputs, the planner can then analyze the effectiveness of the current transportation network in meeting those needs. Adjustments to the transportation network can then be made to meet needs.

The following research questions have been identified and will be addressed in this practicum:

1. *What are the transportation needs of non-driving older adults in Victoria?*

An in-depth search of the literature provides a targeted and strategic look at needs met and unmet in the older adult population. Six interviews with people who work with older adults provide a Victoria-based assessment of need. The needs of older adults in

many different urban and suburban environments are compared to offer a complete look at the heterogeneous nature of transportation needs.

2. *What transportation options currently exist for older adults?*

What types of transportation providers exist in Victoria? What types of trip purposes do they serve? Do any transportation providers coordinate with others? Surveys given to Victoria transportation providers provided a basis for understanding how different modes of transportation are offered, run, promoted and organized. The survey provides the practicum with the necessary background and information to inform a coordinated transportation strategy.

3. *What are the opportunities for the development of a coordinated transportation system in Victoria?*

Is there any overlap where current services could be easily coordinated? Is coordinating of transportation resources feasible in Victoria? What are the best ways to involve older adults in the organization and provision of coordinated transportation? What is the role of the planner in coordinating transportation providers and helping meet the transportation needs of older adults? The research was undertaken to address the transportation needs of older adults wishing to age in place. It proposes several projects and ideas that might help to better address transportation need while enabling older adults to age in place and maintain social networks.

1.4. Research Methods

There were three different research methods utilized for this practicum. Each method was used specifically to help understand and answer some of the research questions. A literature review provides the basis and background for this practicum.

Sources on older adults, aging in place, driving cessation, social isolation, whole systems, mobility and accessibility were consulted. The literature review was especially helpful for identifying transportation needs and barriers to transportation.

Surveys were distributed to a variety of organizations that provide transportation services in some capacity. The survey looked at what transportation services exist in the community. Identified were 120 different organizations that provide transportation services through the local phone book. Older adults' independent and assisted living homes, senior centres, transportation companies, churches (only the larger churches in Victoria were included), recreation facilities, non-profit agencies and volunteer agencies were all included. All the identified organizations were contacted via phone. Of the 120 organizations, 58 answered or returned the phone call. Of those 58 organizations, 34 agreed to fill out a survey. Twenty nine surveys were returned. The survey was designed to identify service available, gaps in coverage and how different organizations worked together.

There were 6 interviews conducted with people who have a first hand knowledge of older adult transportation needs. The individuals include Vancouver Island Health Authority health nurses, directors at a few different older adult activity centres and two directors of different volunteer groups. The interviews targeted people who could provide multiple view points on transportation need. Some interviewees work with older adults in the suburbs, and others with city-dwelling older adults. These interviews were structured to look especially at the transportation needs experienced in Victoria.

There were 3 interviews conducted with two transportation planners and a manager of a transportation company. These individuals provided valuable feedback on

the findings of the practicum and the proposed intervention. The planners were able to provide feedback on the role of the planner based on their experience with coordinated and alternative forms of transportation. The manager at a large para-transit company was able to provide significant feedback on how organizations that provide transportation can work together and where the largest barriers lie. These interviews were specifically conducted to provide a planning and management take on the practicum.

1.5. Ethics

The ethics protocol was conditionally approved on December 13th, 2007. Four issues were noted in the initial ethics submission. These issues were addressed and the protocol was unconditionally approved on the December 19th, 2007. The approval certificate can be located in Appendix D.

1.6. Significance

Social exclusion is the inability of people to participate meaningfully, and to the greatest possible extent, in society. Without the ability to meaningfully participate in society, individuals can suffer from loneliness, isolation, lack of social interaction, depression, and ill health. Accessible, affordable and convenient transportation can help address many of these issues. Transportation options allow people with different abilities, incomes and living situations a better chance at participating in society (Lawler 2001, Rosenbloom 2001)

In the transport world, social exclusion refers to the inability of some sections of society to access safe, comfortable, affordable, efficient means of reaching goods, services, jobs, and education. Exclusion can be driven by everything from racism, to the

built environment. Instead of thinking of exclusion as people's inability to adapt to the built and transportation environments, we must look at it as those managed environments not adapting adequately to all people (Lyons 2003, SEU 2003, Hodgson and Turner 2003).

There are numerous factors behind social exclusion. Transportation is just one of the causes. Because of the dominance of the automobile and its ensuing culture, many Canadian cities have accessibility issues for people who do not drive. Access is closely related to exclusion. They both refer to the process of being shut out from economic, social, political, and cultural aspects of society. It stems from living arrangements, aging, disability, lack of social support, gender, race, culture, income, population density, built form, and a lack of high quality, low cost transportation options (SEU 2003, Litman 2003a, Rosenbloom 2001, Hine and Grieco 2003, Turcotte and Schellenberg 2007).

Older adults encompass many, if not most, of the main criteria that lead to transportation disadvantage and social exclusion: they have less disposable income; they have higher rates of disability; in the higher age brackets, they are predominantly women; they live in rural and suburban areas with lower amounts of public transportation availability; and they are more vulnerable to crime and therefore fear crime at higher rates (Hine and Grieco 2003, Hamilton and Jenkins 2000, Burkhardt et al 2002). By planning for older adults, one is planning virtually for everyone, at some point in their life.

There is a wide range of transportation services available in any given Canadian city. Victoria is no exception. By focusing on how the different service providers can better coordinate their services, it is hoped that a more efficient, accessible, and available

transportation network will evolve. The needs of many older adults are not being met by the current patchwork of transportation options and there are many openings for planners to take a more active role in filling the gaps. It is hoped that this practicum can help provide a framework for moving forward with more coordinated transportation services.

1.7. Assumptions

This practicum makes two major assumptions that may limit the real world applicability of its recommendations. The practicum was undertaken to explore the benefits and possibilities of a coordinated transportation system for older adults in Victoria. No consideration was given to alternative programs and options that exist for older adults. The second assumption was that coordinated transportation systems can provide a higher level of service with the equivalent amount of resources. A look at past precedents in the area of transportation coordination showed that benefits accrued to both transportation providers and users when coordination took place. While coordination works in certain locations, guarantees cannot be made that the same benefits will happen in Victoria.

1.8. Limitations

This practicum is limited by four different factors. Victoria is a small compact city with relatively good public transportation and temperate weather year-round. Experiences in Victoria are not necessarily indicative of experiences in other cities. Because of its unique climate, size and built form among cities in Canada, what works in Victoria does not automatically work anywhere else. Most other Canadian cities are larger or smaller as well as colder during the winter months. There are also few cities that

encompass the breadth of living setups as Victoria. Most cities have a definable boundary between urban, suburban and rural, however, Victoria encompasses all of these. Because of these fairly stark differences, transportation solutions and coordination that functions well in Victoria may or may not be transferable.

The methods chosen for this study, interviews and surveys, are assumed to get a good snapshot of local needs and assets. While every effort was taken to ensure that a variety of individuals who work with older adults were interviewed, the author had to rely on volunteers. This self-selection of participants can often privilege individuals with certain issues they wish to air. As only six interviews were conducted, the sample of observers of non-driving older adults in Victoria was not necessarily representative. Because the study did not directly ask older adults what their transportation needs were, a disconnect with what service providers perceive the needs to be, and what they actually are may exist. Not consulting older adults directly is a limitation of this practicum.

While accessibility can increase the usage of transportation by some people, not all people benefit from certain improvements. Transportation is only one part of the puzzle. There are numerous factors that come into play in determining transportation disadvantage, among them: built form, sprawl, income, ability and more. The most accessible and affordable transportation network possible will not solve all transportation problems experienced by older adults.

While the survey was sent to a variety of different types of organizations that provide transportation, the limited number of responders can only support general conclusions. The researcher was not able to ascertain information on the largest source of transportation for older adults; namely, friends, family and neighbours. This is due to the

time and financial constraints of a master's degree practicum. To fully understand how older adults utilize family, friends and neighbours for transportation would require an in-depth survey with a sizable number of surveys returned. Transportation log books would also have to be kept over a long period to ensure accuracy. As a result, this practicum is limited in scope to what publicly accessible transportation providers in Victoria can provide.

1.9. Chapter Outlines

Chapter 1 explained the situation facing non-driving older adults regarding their transportation needs. It laid out the research questions and described the objectives of the practicum. Research methods, assumptions and limitations were also discussed.

Chapter 2 lays out the theoretical framework surrounding the practicum. The first section defines some of the terms and concepts used throughout the practicum: older adults, mobility, accessibility, and Victoria. An in-depth literature review follows this section. It describes the aging population, their living arrangements, how they maintain mobility and accessibility, issues around driving and driving cessation, and background on their current and possible transportation options. The next section defines the theoretical framework that the practicum is structured around. Wicked problems, sustainable transportation, coordinated transportation and the role of the planner are explained and related to each other. The final section provides three precedents of coordinated transportation systems. Each precedent was chosen for representing a particular type of coordinated transportation: urban, suburban and rural. This chapter provides the reader with a comprehensive look at the issues surrounding older adults, transportation, theory and coordinated transportation systems.

Chapter 3 is an overview of the research methods. Surveys and interviews were utilized to provide specific information for the practicum. The surveys asked 29 existing organizations about the transportation services they provided. They were asked about service boundaries, hours, trips provided, trip purposes served, eligibility criteria, volunteered and paid employees, and how they worked with other organizations. There were two sets of interviews undertaken. The first set was with six individuals who work with older adults. They were interviewed about what they perceived the needs of the older adult community to be in regards to transportation. The second set of interviews was with three individuals, two transportation planners and a service provider. They were given the background on the study and asked to provide feedback on the proposed intervention. While sample sizes for the interviews and survey were small, using the information gained from those research methods, as well as the literature review, the author was able to gain perspective on the issues from several vantage points.

Chapter 4 is a discussion of the findings of the research. This chapter considers the results of the survey and the interviews. The first set of interviews is discussed first. Discussion falls under the following categories: transportation needs and modes, maintaining mobility, transportation likes and dislikes, coordinating and arranging transportation, reasons behind immobility, changes in mobility, improvements to transportation services, issues associated with not driving, and future transportation needs. The survey is discussed next. The discussion falls under the following categories: types of organizations, transportation provision requirements, workers and volunteers, service area and hours, trip booking, vehicles, trip provision and capacity, funding, promotion and relationships with other providers. The final section discusses the second

set of interviews. The discussion falls under the following categories: role of the planner and coordinated transportation. This section provides the reader with a comprehensive analysis of the issues in Victoria.

Chapter 5 offers the conclusion, recommendations and options for further research. It summarizes the results of the research and discusses the role of the planner and coordinated transportation networks. The conclusion uses the information gained from the literature review, interviews and surveys to show what the issues are in Victoria, and how coordinated transportation could help improve the mobility and accessibility options for older adults. Recommendations and directions for further research follow the summary.

CHAPTER 2: Literature Review

2.1. Introduction

This chapter features a literature review of the issues surrounding older adults, mobility and accessibility. The literature dealing within this range of issues is vast and covers many aspects that are beyond the scope of this practicum. This literature review looks at some of the main themes associated with older adults, namely: aging, living arrangements, mobility and accessibility, and driving cessation. The first part defines the three key concepts used in this practicum: older adults, mobility and accessibility. It also defines the use of the term 'Victoria'. The second part identifies the main issues around older adults and transportation. The third part discusses the theoretical underpinning of the practicum.

2.2. Terminology

2.2.1. Older Adults

While the definition of people who are older adults is easy to clarify, many older adults do not fit into any mold. They are a heterogeneous group of people with needs and wants that vary greatly. For the purposes of this practicum, older adults are defined as persons over the age of 65. This limit is generally recognized in the literature (Turcotte and Schellenberg 2007). Using 65 as the lower limit for defining an older adult is practical since most demographical information and data use this age. Social institutions also use the age of 65 to define older adults, as that is the age when pensions, discounts and other benefits often become available. Recognizing that older adults vary greatly in abilities and situations, older adults are often divided into different groups by the

literature (Turcotte and Schellenberg 2007). There are 3 different age groups normally used: those 65-74, 75-84, and 85+. The author has used these groups as they offer an easy way of targeting transportation programs. The younger older adults often experience little to no transportation disadvantage, while those 85+ experience a considerable amount more (Murtagh and Hubert 2004, Burkhardt et al 2002).

The term “older adults” is used throughout this practicum to denote the group of people over the age of 65. ‘Elderly’, ‘seniors’, ‘old folks’ and ‘oldies’ are other terms used in the literature and by individuals over 65 to self identify. ‘Older adults’ is used in this practicum as it is generally recognized as the preferred term to define this group. The term “senior citizen” is considered outdated and ageist, however, it is still used in some of the literature.

2.2.2. Mobility

A major component of independent living is mobility and accessibility. Both terms are used as they describe two separate, but related concepts. Mobility is defined for this practicum as: ‘the ease of movement’. Most transportation planning and infrastructure focus on increasing mobility. This should rarely, if ever be the prime goal. Most traveling is done not because of the pleasure of movement, but because one wishes to reach a destination. As a result, policies that focus solely on mobility will often make many destinations less accessible (Levine and Garb 2002). Mobility based policies in Canada and North America inevitably revolve around moving cars quickly and efficiently. This has a tendency of creating sprawl, which makes destinations more difficult to reach with out the use of a car. Even with a car, these destinations spread far enough to become difficult to reach. Mobility, however, is still an important part of any

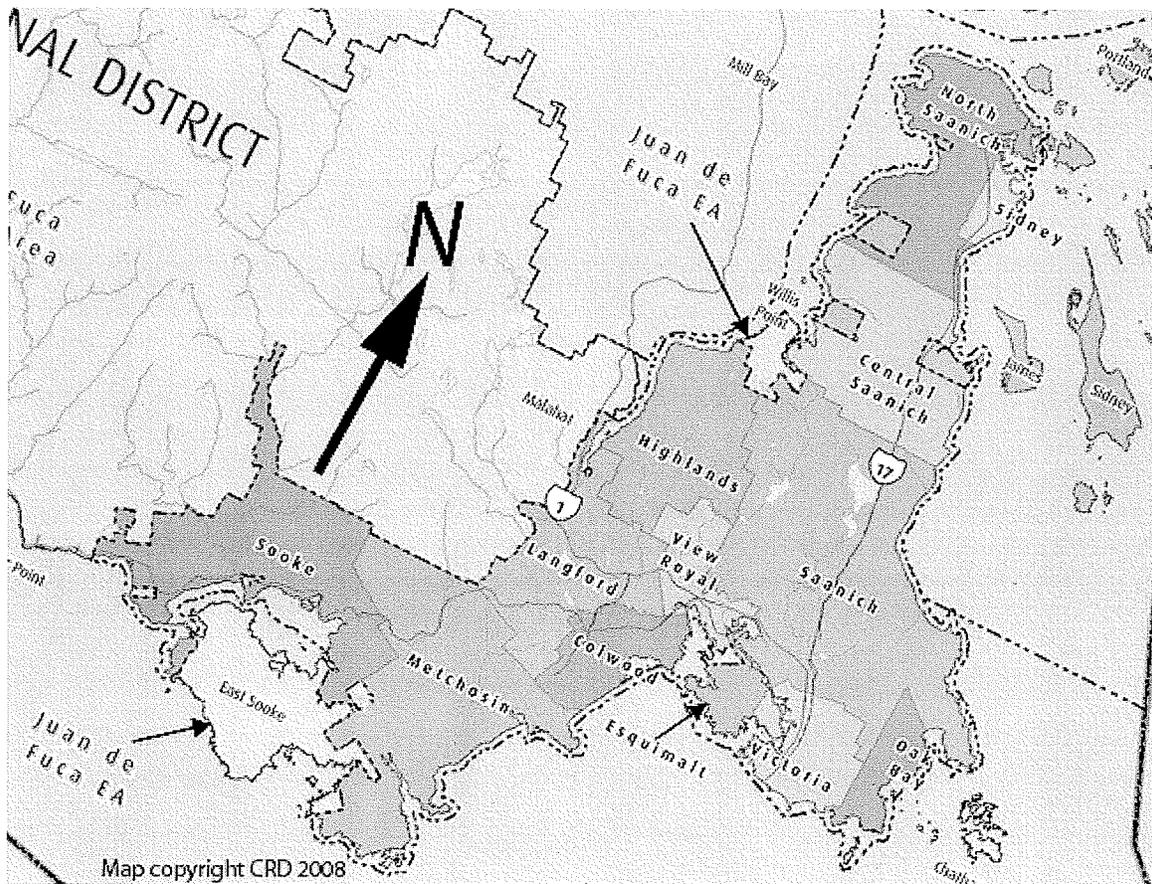
transportation program. Maintaining mobility means enabling movement. Movement is a part of most activities of daily living.

2.2.3. Accessibility

Closely related to mobility is accessibility, which is defined for the purposes of the practicum as: ‘the ease of reaching destinations’. An accessibility-focused transportation policy, combined with making mobility easier, can improve the ability of older adults to travel with ease to the places they wish to go. Accessibility is important because it means making destinations easier to reach, whatever the transportation mode choice.

2.2.4. Victoria

The Capital Regional District, or CRD, refers to the 15 communities that make up greater Victoria: Victoria (city), Saanich, Esquimalt, Oak Bay, Central Saanich, North Saanich, Sidney, View Royal, Colwood, Langford, Highlands, Metchosin, Sooke, East Sooke and the Gulf Islands. For the purposes of this practicum, the name ‘Victoria’ refers to all 15 communities of the CRD, while ‘Victoria (city)’ refers to the municipality of Victoria. The following map shows the boundaries of 14 municipalities, the Gulf Islands are not shown.



2.3. Issues

2.3.1. Aging Population

Canadian society is rapidly aging. In 2005, older adults made up over 13% of the population. The older adult population is expected to double over the next 25 years and it will nearly triple over the next 50 years. Older adults will make up over 25% of the total population (Turcotte and Schellenberg 2007). Knowing that many older adults have mobility and accessibility difficulties, making changes now to how we plan and provide transportation can make life easier for the millions of people becoming older adults over the next 50 years. While 50 years is a long time frame, the older adult population is expected to boom quickly, starting after 2011, when baby boomers start entering their

older adult years (Turcotte and Schellenberg 2007). The fastest growing demographic is older adults over the age of 85. These individuals are more likely than other older adults to be non-drivers, have a disability and live alone; all major contributing factors to transportation disadvantage (Burkhardt et al 2002). Older adult mobility is a looming problem and solutions need to be found and implemented.

It is recognized by the literature that older adults vary greatly in abilities and situations. As a result, older adults are often classified into different groups (Turcotte and Schellenberg 2007, and Hildebrand 2003). As mentioned earlier, Turcotte and Schellenberg (2007) divide older adults into 3 different groups: those aged 65-74, aged 75-84, and those 85 plus. This is the simplest way to group older adults, and much of the literature regarding older adults uses this division.

Older adults deserve to be targeted with special transportation infrastructure. Older adults are less likely to own a vehicle and are therefore more likely to walk and take public transportation. There are two main reasons for lower car ownership amongst older adults: less disposable income due to retirement, and physical inability to drive a car (Hine and Grieco 2003).

Victoria provides an ideal place to study older adult issues. As the warmest city in Canada, it provides a respite from the cold winters for many Canadians. Because of the mild climate, it attracts many older adults. British Columbia's older adult population is expected to grow by 8.3% by 2026 (Turcotte and Schellenberg 2007). Much of this growth is expected in the lower mainland and on Vancouver Island. Victoria itself has the highest concentration of older adults among Canada's 27 Census Metropolitan Areas (CMA) at 17% of the population. It shares this distinction with St. Catherines, Ontario

(Turcotte and Schellenberg 2007). British Columbia has the highest net in-migration of older adults in Canada, meaning that the older adult population is growing as fast or faster than in other provinces (Turcotte and Schellenberg 2007). Because of this high net in-migration of older adults, it logically follows that family and friend support systems are being left behind in the areas from which they are migrating. Fewer family and friend support systems mean that individuals will need to rely more on publicly available transportation systems. Victoria is an ideal case study as transportation need is high and best practices here would be relevant for other urban centres.

2.3.2. Living Arrangements

With a rapidly aging population, ways must be found for fewer workers to support the needs of the growing older adult population. The most cost-efficient way to do this is to have as many older adults living as independently as possible. Aging in place describes a philosophy whereby people do not change dwellings as they become older and retire, rather, their housing stock is either designed, or retrofitted, to accommodate their changing needs. It is recognized that most older adults' desire to remain in their homes grows stronger as they get older. Seventy five percent of people between the ages of 45-54 wish to remain in their homes as long as possible, while 83% of 55-64 year olds, 92% of 65-74 year olds, and 95% of 75+ year olds do as well. About 7% of older adults are expected to move to organized retirement communities. This implies that much of the other 93% will remain in the communities they have lived in for years (Burkhardt et al 2002 & Lawler 2001).

There are a few positive consequences arising out of aging in place. Number one is the ability to maintain social networks. Aging in place promotes self-sufficiency while

encouraging interdependence between friends and family. It helps prevent social isolation and helps maintain quality of life. Number two is it limits the negative effects that happen when individuals relocate. Moves that result in the loss of functional independence can be difficult for individuals to recover from and can lead to confusion and lower self-help capacity (Lawler 2001).

One major concern with aging in place is that older adult populations in all areas are growing, but the proportion of the population who are older adults, is declining in rural and central city areas, while suburban areas are experiencing rapid growth in the older adult population. This trend closely follows that of non-older adults. North American society is trending towards lower density and more suburban living arrangements. In 2000, 73% of the American population was living in a suburban or rural location (Burkhardt et al 2002). As older populations become more dispersed into lower density living situations, keeping them mobile becomes more difficult.

Different transportation options will play a major role in allowing older adults to access services and daily needs while aging in place. Because aging in place means older adults will be more suburban and widely dispersed, more localized and targeted transportation will be required to help maintain the aging in place lifestyle. At some point, the question will arise whether it is more important to allow and facilitate aging in place, or if resources would be better used moving older adults to more central locations with more amenities included in their home. Such central locations would include 55/60+ apartment/condo buildings, assisted living facilities, and care homes. These three types of living arrangements go from completely independent living (apartment/condo

complexes), to semi-independent living (assisted living homes), to completely dependent living (care homes).

While each person and their family will need to discuss living options, the earlier decisions are made, the easier they are. As mentioned by Lawler (2001), older adults become less keen to move, the older they get. The benefits that can arise from moving to an assisted living facility may outweigh the costs associated with doing so. Assisted living facilities are one of the fastest growing living arrangements for older adults. There is considerable variety in the living arrangements and types of services offered in assisted living facilities. They are defined as housing for older adults with supportive services in a home-like environment. They are non-medical and community based, offer oversight of residents and help them, when necessary, perform activities of daily living (Ball and Whittington et al 2000, Chapin and Kepper 2001, and Imamoglu 2007).

Assisted living facilities came about to meet two objectives: 1. flexibility of care to meet the needs of individuals with varying degrees of disability; and 2. create a more homelike environment for residents, as opposed to the institutional feel of traditional nursing homes. The homelike environment is intended to promote the beneficial aspects of aging in place (privacy, dignity, choice, independence, and social interaction), while providing an extra level of care when needed (Imamoglu 2007). While aging in place in terms of living in one's own home is a worthwhile policy goal, encouraging the creation of assisted living facilities within neighbourhoods would still allow residents to still age in place, just not in their own home. The severing of social connections that sometimes arise from longer moves would be avoided, and older adults living at such homes would be easier to serve with higher quality, especially door-to-door, transportation options.

2.3.3. Mobility and Accessibility

Older adults are moving towards an independent existence similar to that of their younger years. Retaining this independence is contingent on maintaining mobility and accessibility. Mobility means older adults can travel without relying on family and friends for their basic needs. Accessibility means that any given place can be reached in some manner. Transportation is needed to help maintain personal relationships and access to services. Withdrawing from the mainstream lifestyle and increasing personal leisure time often goes hand in hand with becoming an older adult. Whether or not a person will make full use of this leisure time is dependant upon mobility and accessibility.

Studies that looked at travel patterns of older adults showed that as age increased, so did the number of older adults not traveling. Contributing factors to this decline include physical and mental disabilities, affordability of alternative transportation options, health affects associated with medications, and the design of transportation systems not geared toward the particular needs of older adults. While those of higher incomes traveled more, it was not a significant difference than those with lower incomes (Gillan and Wachs 1976, Rosenbloom 1998, Noble and Mitchell 2001, Metz 2003, and Alsnih and Hensher 2003).

Transportation is especially important for ensuring older peoples' participation in activities. Research shows the importance of getting out of the house to older peoples' life quality. There are five main barriers cited by researchers as hindrances to using public transportation. The first is the availability of transport and its physical accessibility: if it does not go where or when people need it to and if they cannot get to it, it becomes difficult to use. The second barrier is the safety of transport. Crime and the

fear of it deter people from using public transit. The third is cost. Transit costs have gone up 30% over the past 20 years, while private vehicle operating and ownership costs have stayed the same. The fourth barrier is limited travel horizons. People are hesitant to make long journeys that require transfers and go through areas with which they are unfamiliar. The last identified barrier is the location of services. Facilities are often too far away or not open during convenient hours (SEU 2003).

Land use patterns influence access, especially in the area of services. The current trend around the world is towards the centralization of services. This centralization has reduced access for many older adults (Lyons 2003). Land use planning policies of the past few decades have allowed less dense and more dispersed patterns of development. Large shopping, social and office centres on the edge of cities have become increasingly prevalent. This concentration of activities has worked well for people with private vehicles, but this is not the case for those without them. Public transportation providers have often failed to adapt to the changing cityscape and the increasingly complex travel patterns it required (SEU 2003).

The built environment probably has more affect on accessibility and mobility than any other factor. There are multiple aspects to the built environment that help cause and perpetuate transportation disadvantage. Low density development is geared towards the car. Without a car, mobility is severely limited and accessibility of goods and services are lower. Separated land uses mean shops and services are not easily accessible without a car. While discussing and analyzing the built environment in depth is beyond the scope of this practicum, consideration must be given to it given its importance in transportation disadvantage. Geography and climate also limit the number of transit options. Eight-

hundred metres is considered a reasonable distance for a healthy older adult to walk, however, more than 1/3 of older adults cannot walk that far. People also do not enjoy waiting in the rain or cold weather for a late bus to come. The pedestrian part of any journey is often the most unsafe (Iles 2005, Burkhardt et al 2002).

In addition to the built environment, a special emphasis on transportation especially for female older adults is warranted. Older adult women are significantly more likely to need and get assistance for shopping or transportation than older adult men. Of female older adults between the ages of 75-84, 18% need assistance, whereas 8% of older adult men in the same age group receive assistance (Turcotte and Schellenberg 2007). Older adult women experience lower mortality rates and lower rates of certain chronic diseases than men and they use health care services more often and report more instances of functional limitations and physical disabilities. Women live longer than men with a diminished quality of life due to higher incidences of disabilities. Disabilities that are nonfatal tend to receive less care than those that are fatal and thus do not receive care commensurate with their frequency and impact. Women are also more likely to live alone, be frail, and have low incomes (Murtagh and Hubert 2004, Burkhardt et al 2002).

2.3.4. Driving and Driving Cessation

An important consideration in maintaining mobility and accessibility is that most older adults eventually stop driving. Very few older adults plan for the eventuality that they may cease driving, either by choice or force. Driving is considered by most people to be closely related to wellbeing, mobility and autonomy. Unplanned driving cessation is often associated with depression, reduced out of home activities, isolation and a lower quality of life. This in turn can influence health. Most individuals who ceased driving did

so for health reasons, though the majority of drivers have no intention of giving up their cars (Alsnih and Hensher 2003, Metz 2003, and Liddle et al 2004).

Travel behaviour is seen as following one basic premise in the literature: people tend to travel the way they have always traveled and will do so for as long as possible. This means that drivers rarely give up their personal vehicles willingly. As people age, it gets increasingly difficult for them to change to different modes of transportation. In choosing the personal vehicle over all other forms of transportation, older adults cite the reliability, door to door service, perceived safety, and ability to go when and where they like as the main reasons for using them. Providing as close to this level of transportation with other modes as possible, and addressing those issues closely and comprehensively, will go the furthest in enticing individuals out of their personal vehicles. Educational campaigns at younger ages will also help individuals when they have to make choices later in life (Alsnih and Hensher 2003, Metz 2003, Sterns and Burkhardt 2003).

The importance of safe mobility by older adults is well recognized by health professionals and policy makers, but most older adult drivers reject arguments regarding the safety of their driving. As a result, very few have made plans for when they will no longer be able to drive. A lack of suitable transportation options available to non-drivers plays a large role in the negative outcomes associated with giving up driving (Liddle et al 2004).

Some 85-90% of all travel by older adults is done by car in the USA and Canada. This is comparable to the number of trips taken by people aged 16-64 in private vehicles. Walking was the next most important mode of travel at around 8-10%, followed by public transit with 2-3%. Most non-driving older adults report a lack of transportation

options, which in turn leads to a lower quality of life (Hildebrand 1998, Rosenbloom 2001). According to Hildebrand (1998), longitudinal studies have shown these numbers to be holding relatively stable over the years.

In spite of the benefits offered by the personal automobile, there is plenty of evidence to make it a less desirable transportation option for older adults. As people age, their ability to safely operate a vehicle diminishes because of different functional impairments. Older adults represent 13% of the USA population, but they make up 18% of vehicular deaths. People over 75 have more motor vehicle deaths per mile than any other segment of the population except those under 25. Older adults over 75 also have more crashes than anyone except teenagers (Rosenbloom 2001).

British Columbians must all purchase their auto insurance through ICBC, the Insurance Corporation of BC. ICBC will not renew insurance for people nearing or after their 80th birthday without a medical exam. After the age of 80, drivers are required to submit a medical exam every two years to ICBC to prove they are healthy enough to drive. ICBC requires these exams because at this age, their research has shown that people are more likely to have medical conditions that may affect driving.² Because of the higher percentage of Victorians who are over 80 compared to the rest of the province and Canada, targeting alternative transportation programs to Victoria older adults will have more impact.

As a result, a shift in beliefs as well as policy is needed to: one, reduce the need for older adults to use a personal automobile and two, provide them with transportation equal to or better than that provided by the personal automobile. Transportation planners often think of older adults as having more flexibility in when they travel and are more

² Information from ICBC website at: http://www.icbc.com/licensing/reexam_medical.asp.

tolerant of overall ride times. Most older adults, however, would disagree, as they value their time just as highly as they always have (Burkhardt et al 2002).

2.3.5. Older Adults and Transportation

Transit has a difficult time attracting older adults who have a choice of travel modes. The demographics that are especially hard to attract are those who live outside of central cities and those who have multiple impairments. In terms of public transit, older adults have been shown to want more park and ride lots, more feeder type buses, more travel information, and more personalized help in learning and using transit. There are many older adults that might be willing to use quality transit. Some 68% of non-driving older adults do not use public transit. In the USA, this amounts to over 3 million individuals. Transit planners that assume better fixed route services can meet the needs of older adults are setting themselves up for failure. Fixed route services cannot meet all the needs of many, if not most, older adults (Burkhardt et al 2002).

Currently, a number of different modes are available to older adults that do not drive. First and foremost, rides are provided by family, friends and neighbours. This often takes the form of a spouse or child driving the individual around. Older adults prefer this type of transportation, as it has all of the benefits of the private automobile, without the need for driving. It is not always an ideal situation, though, as negative aspects of rides include: a feeling of indebtedness that cannot be repaid; schedules and routes that do not meet needs; and nervousness about the driving skills of the driver (Kostyniuk and Shope 1999).

Another type of transportation mode is volunteer drivers. Volunteer drivers usually come together under the oversight of a non-profit agency. They own, operate,

maintain and insure their own vehicles. The agency or oversight entity often purchases excess insurance. Some drivers are reimbursed for mileage, but the success of such programs depends on keeping costs to a minimum. There are a number of volunteer organizations serving Victoria, though they limit their services to medical trips. This is often the case in other volunteer driving agencies across North America. While it is an ideal type of transit for older adults, it is expensive and hard to find volunteers willing to take on the expense (Carneige, Woods et al 2005).

It has also been recognized in the literature that while the incidence of driving a car declined with age, it was not replaced by an increase in alternative forms of travel. After the age of 75, daily trips dropped amongst all older adults (Hildebrand 1998, Kostyniuk and Shope 1999). The number of older adults not traveling also increased substantially along with age. Because of the lack of alternatives to the car, public transportation is often the only transportation solution offered. Public transit is often inadequate in meeting the needs of a fulfilling retirement. Of older adults that drive, most frequent shopping and personal business destinations, rather than leisure activities. Public transit riding older adults, however, were more often going on personal business and leisure trips, rather than shopping trips. These results imply two things: one, that older adults use cars to perform essential errands; and two, that public transit does not seem to be well suited to shopping trips (Hine and Grieco 2003, Gillan and Wachs 1976).

To encourage older adults to use non-personal automobile travel, any form of transportation will have to mimic the car. There are five different criteria for measuring older adult friendly transportation. They are: availability, accessibility, acceptability, affordability and adaptability. These five criteria, detailed below, can help guide

implementation of different services. When considering the five 'A's', transportation providers need to meet the requirements of each of them to attract as many riders as possible (Burkhardt et al 2002, Sterns and Burkhardt 2003, Alsnih and Hensher 2003, Link 2004, CUTA 2007).

Availability is important in senior oriented transportation, as trips need to be made during evening hours and on weekends. The wider the hours of service and the greater the number of service hours, the better the availability to all individuals needing transportation (Link 2004).

Accessibility refers to the ease of use of the different vehicles and getting to those vehicles. Problems can be experienced when vehicles have stairs, uncomfortable (or no) seats, no wheelchair access, not enough room for packages, insufficient grab bars, and untinted or unclean windows. Getting to the vehicles is often more important to accessibility than the vehicles themselves. When stops are not accessible, transportation that goes from door to door may be necessary. The provision of such service is an important aspect of accessibility (Link 2004).

Acceptability means that vehicles, stops, transportation infrastructure and transportation services meet the varying needs of users. These needs should be met in the most user-friendly manner, which minimizes the amount of effort expended to partake of the transportation services (Link 2004).

Affordability is important for different modes of transportation. Publicly provided transportation services should be cheaper than driving a personal automobile while providing good quality. Affordability can be accomplished through different subsidies to individuals or transportation providers (Link 2004).

Adaptability refers to the ability of the different vehicles to change to meet varying needs. This can mean the availability of tie down spots for wheelchairs and scooters to ramps that allow no-step heights to gain entrance to vehicles (Link 2004).

Fixed route, fixed schedule service does not meet the five 'A's' in many cases. Distances to transit stops, waiting at transit stops, carrying bags onto transit vehicles, transfers and limited schedules make public transit a hard sell for older adults used to private automobiles. New, as well as improved, transit provision approaches will need to be explored to provide transportation services at the level that older adults expect. Curb to curb, door to door, and door through door transportation are three different paradigms for transportation providers to work in and between. Each paradigm requires more resources than the one before for an equivalent amount of service. Door through door transportation is perhaps the highest level that can be offered (Burkhardt et al 2002).

Curb to curb transportation service can be provided at a slightly higher cost than fixed route transit, but at a significant savings over paratransit and taxis. Curb to curb transportation is defined as transportation that picks up and drops off passengers at the curbside closest to their destination and origin. Drivers may or may not physically help that passenger board and disembark the vehicle. Systems vary, but usually, curb to curb transportation is provided by transit authorities through the use of flexible routing. Flexible routing uses smaller buses that run on semi-fixed routes at regular intervals. Individuals may call in to request a pick up at a specific point and the bus will route past them. This eliminates the need to walk to a bus stop. In some cases, flexible routing provides service from neighbourhoods to destinations; in other cases, it provides connector service to higher order routes (Carneige and Woods et al 2005).

Door to door transportation often is cited in the literature as one of the most important aspects of transportation that older adults want. Independence is an important travel characteristic for older adults. Removing extra steps, like walking to a bus stop and transferring vehicles, makes the trip not only easier and less stressful, but also more likely to be taken. Older adults want transportation that closely emulates that of the personal automobile. By taking that concept a step further, offering a personal assistant (the driver) and a lower cost of travel to the user, encouraging older adults to give up their cars will be easier. Door to door transportation, however, requires a considerable amount more resources as compared to fixed route service. Door to door transportation, as provided in Victoria by handyDART, volunteer drivers and taxi companies, does not come cheap. The average cost per ride by handyDART is around \$18, with the user only paying a bus fare. While this is affordable to the users, it costs the government more than the average taxi trip. Subsidizing taxi travel or increasing the availability of volunteer drivers could be alternatives to increasing paratransit availability (Burkhardt et al 2002).

Door through door transportation offers slightly more than door to door transportation. In door through door transportation the driver, or attendant, helps the individual from within the origin to the vehicle, drives them to their destination and then helps them inside their destination. These types of services often help with carrying packages, running errands and provide a social aspect as well. Volunteer driving organizations are the main representatives in this field of transportation. Because of the use of volunteers and normally those volunteers' vehicles, costs are kept to a minimum for what might otherwise be prohibitively expensive. Door through door transportation is

mostly needed by frail individuals and those with significant mobility limitations (Burkhardt and Kunschner 2005).

As detailed in the sections above, older adults are aging, giving up their driver's licenses, aging in place, and trying to maintain the lifestyle they have long had. Transportation providers will be increasingly called upon to meet the travel needs of these older adults. In Victoria, with its large and fast growing older adult population, the need is acute. Additional higher quality transportation services are needed if mobility and accessibility needs are to be met. More door to door and curb to curb services are necessary to help older adults age in place and maintain their lifestyles.

2.4. Theoretical Framework

This practicum is supported by four main theoretical foundations: wicked problems, sustainable transportation, coordinated transportation and collaborative planning. Each theoretical aspect informs and provides support for this topic and how it can be addressed from within a planning framework. Providing and addressing the changing transportation needs of older adults is not only a wicked problem, it is also a sustainability issue. In an era of increasing gas prices, peak oil, issues about the global climate, and the growing population, the personal automobile is fast becoming a hindrance to future generations' ability to support themselves on dwindling resources. By enabling more people to give up their own car and utilize other modes of transportation, society can sustain a higher quality of life. The planner has a role in helping this come about. Through the use of collaborative planning, the planner can address wicked transportation problems presented by the users and pair the providers together to meet their transportation needs.

2.4.1. Wicked Problems

Transportation planning presents planners with innumerable ‘wicked problems’ to address. A ‘wicked problem’ was coined and described by Rittel and Webber (1973) in their paper “Dilemmas in a General Theory of Planning”. They describe wicked problems as problems that cannot be accurately defined. These problems exist widely in the social sciences and the problems do not have a right or wrong answer, rather they have better or worse answers. The reasons behind this are inadequate theories that prevent accurate forecasting, insufficient data to fully understand what exists, and competing political ideologies that define success in different ways. The end result of addressing wicked problems is that it is not always clear if the problem has been solved. The authors also state that wicked problems are never solved; they are only re-solved again and again.

When dealing with non-wicked problems, or ‘tame’ problems as Rittel and Webber term them, the problem can be defined and one knows when they have the solution. A simple example of such a problem is $2+2$. We know the answer to this problem is 4, because of the laws of mathematics. We know how to define the problem as well as the answer. There can be no other answer; the solution was clear.

When dealing with wicked problems, neither the problems nor the answers are straightforward and easily defined. As a guide for recognizing and addressing wicked problems, the authors detail 10 properties of them in their paper (Rittel and Webber 1973):

1. Wicked problems cannot be understood until solutions have been formulated. The problems and the solutions are both slippery slopes, they depend on the one another and neither can be formulated without understanding the other. This

means that with every solution presented, a changed understanding of the problem creates more possibilities for solutions while rendering the first solution incomplete. As a result, defining the problem becomes part of the problem. To accurately define a problem, the context must be well known and understood, this is near impossible when considering social issues.

2. Wicked problems have no ending, they are continuous. Because they do not end, improvements can always be made and problems can be continually solved with better solutions. The only way a solution is found is when a decision is made to stop working on the problem, otherwise the problem is ongoing.
3. As mentioned earlier, wicked problems are not solved with yes or no answers, they have better or worse answers. Because of varying outlooks and opinions, solutions can be judged differently by different people. One individual may think a 'good' solution to a wicked problem has been found, while another may think it only 'adequate' or 'acceptable'.
4. It is impossible to test if a solution is the final answer. This is due to the effects of solutions playing out over an undetermined amount of time.
5. Every implemented solution counts when addressing a wicked problem. When implementing a solution, peoples' lives are affected and mistakes cannot be taken back. The resources, time and effort put into implementing solutions can cause permanent change.
6. There is an unknown amount of potential solutions to any given wicked problem and there is an unknown number of potential paths to any given solution. This means that given a wicked problem, the planner can use existing tools (such as

zoning bylaws, covenants etc...) or create new ones to address it. What is necessary, however, is decision making capacity to pick and choose the tools for the job as well as how to use those tools. There is an infinite number of combinations.

7. Wicked problems are never alike. Because of localized factors, a wicked problem, such as child poverty, will never resemble the same problem in another local. There are always distinguishing factors in some part of the problem. As a result, using best practices from other jurisdictions to implement changes in other places may not only be ineffective they may be harmful. Care needs to be exercised when implementing change.
8. Wicked problems stem from other wicked problems. Wicked problems will lead the way to further wicked problems. One of the downfalls of addressing wicked problems is planners must always be aware that consequences of earlier decisions will give rise to new problems. The authors describe all problems as the difference between what is and what should be. When addressing this discrepancy, it is important to address it at as high a level as possible. Small improvements at lower levels do not always lead to system-wide improvements.
9. The discrepancy between what is and what should be can be described in numerable different ways and each description leads to a different solution. Planners, using experience and education, make choices in dealing with wicked problems that make the most sense to them individually. As a result, every individual will solve a wicked problem in a different way, the end results being only better or worse than other potential solutions.

10. Planners cannot be wrong. Because decisions made today affect lives for years to come, large mistakes cannot be tolerated. Planners must take responsibility for their actions.

The 10 properties expounded above show that when dealing with wicked problems there is no one 'right' answer, rather there is an enumerable amount of them. Planners, using their best judgment can only hope to improve the welfare of as many as possible. The plethora of different values, politics, actions, needs and wants among people means that no singular decision, project or other public good will be valued in the same way. Wicked problems are never going to be addressed in a manner that makes everyone happy. Decisions must be made and some people will be made better off than others. A decision must also be made as to when the problem has been addressed satisfactorily, otherwise changes will be forever ongoing and the project will have no end.

Transportation planning is made up of a series of wicked problems. Three examples of wicked transportation problems are:

- Transportation options are required for older adults outside of the personal automobile. There are numerous ways to provide acceptable transportation service to older adults. This constitutes a wicked problem for many reasons. The extent of the problem cannot be understood as new solutions will create new problems and present planners with new opportunities. Some options will be better than other options, there is no way of knowing if a decision was the right one. As an example of one possible solution to providing transportation for older adults is

made to expand a paratransit system. Many users may be made better off than before the expansion, but unmet wants and needs will remain.

- The transportation needs of older adults are diverse. Because of this diversity, no single solution will meet the needs of every individual. Some solutions will lead to certain needs to be better met while others will lead to more unmet needs. Wicked problems give rise to more wicked problems. Every solution can be tailored differently, however, no solution will be the end solution. Continual adjustments and refinements will be needed to address further wicked problems as they are identified.
- Coordination of organizations that provide transportation provides one solution to addressing the wants and needs of older adults. What form this coordination takes depends on decisions made by stakeholders. There are further wicked issues that need to be addressed in a coordinated system, among them: the allocation of resources; the prioritizing of trip purpose and users; the dividing of transportation duties between organizations; and determining needs.

Limited resources, innumerable needs, and a constantly changing landscape mean that planners must continually address problems as they crop up. As with other areas of planning, solutions only make situations better or worse than they were before. This means that a constant monitoring and evaluating paradigm must be in place among administrators of any transportation program. For positive and long-term change, planners must have an understanding of what wicked problems are and how they are addressed.

2.4.2. Sustainable Transportation

Sustainability is an important aspect of this practicum. With the increasing congestion on the roads in Victoria, and the pollution that follows, encouraging people to use alternative forms of transportation is important. Sustainability is defined as the ability of those alive today to meet their needs, without compromising the ability of later generations to meet theirs (Brundtland Commission 1987). Current transportation provision through the use of personal automobiles has created an unsustainable transportation system. Almost all transportation in Canada runs on oil. This is a known finite non-renewable resource. Use of it today precludes the use of it later.

A sustainable transportation system, as defined by the Centre for Sustainable Transportation at the University of Winnipeg (CSTCDT), takes the concept of sustainability a bit further. This definition is widely accepted in the literature and has been adopted, with minor changes by the European Union (CSTCDT 2002 and 2005, Greene and Wegener 1997, Hallsmith 2003, Steg and Gifford 2005, Sultana 2005, and Boschmann and Kwan 2008). A sustainable transportation system is defined as one that:

- “allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations.
- is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy.
- limits emissions and waste within the planet’s ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise” (CSTCDT 2002, p1).

Sustainable transportation is seen in the literature as containing 3 separate, but equal parts: social sustainability, economic sustainability, and environmental sustainability. While environmental sustainability is the most well known, researched,

and reported on, they are all aspects of sustainable transportation. A carbon neutral form of transportation is useless if it doesn't carry people. A transportation system that is expensive does not provide sustainable transportation for those who cannot afford it and must resort to other modes. Each of these parts is explained in more detail below.

Socially sustainable transportation is defined by Boschmann and Kwan (2008, p. 139), "as transportation that provides equitable access to urban opportunities, minimizes social exclusion, and improves or does not overly diminish an individual's quality of life." To address how transportation can be socially sustainable, the authors of this article specifically set out to discover how transportation can be socially *unsustainable*. This is defined as barriers that prevent individuals from meeting their basic needs and pursuing a better life for themselves. Such barriers are best discovered at a local level. Specific barriers include expensive transportation options, few choices, long distances to travel, and the inability to walk or bike to the specific need. Socially sustainable transportation systems must be adequate, efficient, and economical at providing people the opportunity to access activities of daily living. As cities grow and sprawl, those on lower incomes are hit the hardest by transportation inequality. To address this inequality, transportation systems need to focus more on localized transportation needs in various neighbourhoods (Boschmann and Kwan 2008).

Economically sustainability transportation means that the transportation network is costing society less than the benefits it provides to society, without unduly impacting future generations. Transportation projects today are usually based solely on their economic sustainability. Rather, projects and transportation networks should be judged and implemented based on fulfilling all three branches to the maximum level possible.

Because the economic and cost considerations of most projects are easier to compute than the environment and social aspects, economic considerations are given first priority. The implications of this are social and environmental aspects of a project are less important (Deakin 2001, Litman 2003b).

Economically sustainable transportation is more than just the economics of a project. To be sustainable, transportation must also consider the difference between growth and development. Economic progress is usually measured in terms of consumption, assuming that people are better off the more they consume. This is usually seen as a number referred to as Gross Domestic Product or GDP. GDP measures growth, but not development. It shows the quantity of goods produced and sold, but says nothing about the quality. Sustainable transportation means measuring the quality, development, and access provided by transportation projects, not the quantity, growth or mobility afforded by them. To be sustainable, transportation systems must provide what people need, not just what people want. Sustainability means that individual needs and wants are below those of the community's needs and wants (Litman 2003b).

Environmentally sustainable transportation is one that fulfills 3 conditions: it does not use renewable resources faster than they are regenerated; the use of non-renewable resources is not faster than the rate at which renewable resources are developed; and the pollution caused does not exceed the ability of the environment to assimilate it (Greene and Wegener 1997). The World Bank (1995) also considers reducing and eliminating the threat to human health as an integral part of an environmentally sustainable transportation system, other authors consider this a part of social sustainability (Litman 2003b). As is clear to most observers, the current transportation system in Victoria and most, if not all,

of North America does not meet any of these four conditions. Equity between generations, nations and individuals is an important aspect of environmental sustainability. A sustainable system must encompass everyone and everything, not just specific modes, trips, or vehicles (Greene and Wegener 1997).

Other important considerations for environmental sustainability include human health, degradation of renewable resources, use of non-renewable resources, especially those necessary for future generations' well being, and any aspects of the transportation system that lead to and/or exacerbate the previous three points. Exacerbating effects can include such things as: congestion, unsafe modes of travel, inefficient vehicles, excessive unnecessary travel, and rampant sprawl and unsustainable urbanization (Greene and Wegener 1997, Steg and Gifford 2005).

To be considered a sustainable, a transportation system must meet the social, economic and environmental needs of individuals. Networks must be developed that do not consume more resources than are regenerated, nor use excessive non-renewable resources, are safe and secure, available to all, and meet the wants and needs of everyone. It is a tall order that, under current technology and built form, is unachievable in the near term. Steps, however, can be taken to start making systems more sustainable. Reducing the need for personal automobiles is a first and important step. Reducing the need for vehicular travel is equally, if not more, important.

2.4.3. Coordinated Transportation

With the limited amount of funding provided for transportation, new and creative ways of running older adult oriented transportation projects are emerging. The need to use existing resources as efficiently as possible has led to coordination between

transportation providers. There have been a number of different strategies implemented in systems across North America, although there are three main ones that usually occupy the centrepiece of most coordinated systems: sharing vehicles, sharing funding and sharing administrative functions. Coordination is done to reduce costs, increase availability of transportation, share funding sources, direct different vehicles to the most appropriate uses, reduce unnecessary travel by vehicles, and to provide the most rides possible per level of funding. Coordination of transportation services is the coming together of two or more agencies, the sharing of personnel, capital, and/or financial resources, to more efficiently accomplish their transportation objectives (Burkhardt 2004, Schlossberg 2004).

Schlossberg (2004) details the three ways in which coordinated transportation systems come about: through government mandate and funding, through government funding and local initiative, and through local initiative alone. He found that coordination worked best when there was involvement at a number of different levels of government along with strong local initiative. The need for coordinated service is not an indicator of potential success. From these different levels of support and initiative, there are four keys to successful coordination: sufficient resources, technical expertise, supportive laws and/or policy, and the presence or support of a higher level government or entity. The presence of these keys is not enough to guarantee successful coordination, organizations need to see past their own self-interest and be willing to work towards common goals and objectives. This can often mean going against one's own short term self interest in favour of long term benefits.

Coordinating transportation requires the involvement of a number of people and agencies if systems are to be successful. For this to happen, issues such as political jurisdictions, responsibilities, modes of transportation, objectives, regulations and funding sources all need to be addressed, standardized, and agreed upon before coordination can take place. In most communities, especially ones as big as Victoria, there are a number of agencies, groups, volunteers, and organizations that provide transportation to older adults. Many of these different transportation providers underutilize vehicles while providing similar, overlapping, services. Coordinating such services would mean more fully utilizing existing vehicles, which in turn would reduce the need for additional vehicles. Reducing the number of vehicles needed reduces costs while providing similar levels of service (Burkhardt 2004, Link 2004, Schlossberg 2004).

Coordinated transportation systems that lower costs, can then focus on improving the five A's: availability, accessibility, adaptability, affordability and availability. Expansions can come through more days and hours of service, service areas, trip purposes, and the types of people served. Savings can also be used to make the fleet more accessible, provide more passenger information, and/or provide more training for drivers and support staff. The improving of the five 'A's' in any transportation system will help attract riders, make trips easier and less stressful and increase the quality of life for older adults (Burkhardt 2004).

2.4.4. Role of the Planner

In planning transportation options for older adult populations, the planner has a number of roles. They must identify wicked problems, develop potential solutions to these problems, negotiate coordination strategies with stakeholders, monitor coordinated

programs, adjust inputs as needed to achieve better results, and provide technical expertise to organizations. The identification of problems is an ongoing process, as the needs of people constantly change. Problems that planners work with and address are wicked problems stemming from the human condition, built form, and human needs. There are two schools of thought on how to address such policy issues: use rational comprehensive models or successive limited comparisons (Lindblom 1959).

The rational comprehensive model is described by Lindblom (1959) as one that identifies the ends and then the means are sought to achieve them. The rational comprehensive model requires looking carefully and holistically at as many policies, needs and other inputs as possible. Nothing important should be left out. Following this, theory is utilized to best determine policy. However, as Lindblom (1959) points out, this approach cannot adequately deal with higher level problems. It is easy enough to consider all inputs for lower level simple problems, but wicked problems, such as those described in section 2.4.1, have far too many inputs and factors for humans to fully comprehend (Lindblom 1959).

This leads to the need for using the successive limited comparison model of addressing policy issues. This approach is characterized by simplifying problems to consist of a few variables and values. The planner can then address them in incremental ways with different policies. Policies alternatives are compared and contrasted to each other and closely related policies and are implemented based on what value the planner wishes to most address. Through this approach, it is expected that any goals or ends will only be partially reached, and further refinement and implementation of other policies will be necessary. The planner can watch the changes made in real time and better adjust

the policies that follow to make minor corrections to previous ones. This succession of changes to a system means fewer large and lasting mistakes are made. A more stable system results (Lindblom 1959).

To fully understand the nature of the wicked problems presented by coordinated transportation, a collaborative approach to planning is necessary. Booher and Innes (2002) detail three conditions that are required for effective collaborative planning. The first condition is the need for a high diversity of stakeholders. The diversity needs to represent the full range of knowledge and interests that are pertinent to older adult transportation. This diversity can come from users, transportation providers, politicians, planners, age, sex, ability, and living arrangement. The higher the diversity collaborating, the more successful any strategy will be. The second condition is that all stakeholders are interdependent on other stakeholders to fulfill their interests and that they recognize this interdependence. The third condition is genuine communication. All stakeholders need to be assured that communication between each other is trustworthy, accurate, and comes from individuals who are informed, sincere and legitimate. Healey (1998) calls for more than just good communication, there must be a framework of solid social infrastructure between government, organizations and individuals. These connections need to be based on positive social relationships. Stakeholders come together when they have learned that common objectives can be reached and surpassed in a way that would be impossible to do without collaboration (Healey 1998, Booher and Innes 2002, Walter and Scholz 2007).

The planners' role in helping bring about collaboration between various stakeholders starts with the identification of common problems and key actors. They then

bring together these actors, build trust between them, enable information to flow, represent interests and mobilize action (Booher and Innes 2002). Specific roles the planner plays in collaborative planning scenarios include matchmaker, facilitator, mediator, negotiator, monitor, and leader. In the matchmaker role, the planner brings the appropriate stakeholders together. As a facilitator, the planner helps the transportation providers and users agree on common goals and objectives. As a mediator, the planner works out differences between stakeholders. As a monitor, the planner watches over the system to ensure goals and objectives are being met, that linkages are maintained, funding remains in place, organizations do their part to help each other and that user needs and wants are being met. As a negotiator, the planner represents specific interests and works on their behalf. As a leader, the planner continuously advocates on behalf of stakeholders and leads the coordination process. Collaborative planning is the coming together of diverse stakeholders to collectively meet shared goals and objectives. They do so knowing that the benefits of collaboration are accrued to all stakeholders.

Collaborative planning is the institutionalization of governance procedures to ensure various stakeholders are heard and a variety of viewpoints and needs are addressed (Healey 1997, Healey 1998, Booher and Innes 2002, Burkhardt et al 2004).

With collaborative planning exercises, attention must be given to the underlying trust and communication between stakeholders. Adjustments will need to be made on an ongoing basis to better meet the needs of the various stakeholders. Measurable objectives may be changed over time, and constant evaluation done to ensure that the transportation system is operating efficiently and meeting those objectives (Burkhardt et al 2004, Link 2004, Lindblom 1959).

2.5. Precedent

As part of this practicum, it was important to see what already exists in terms of coordinated transportation systems. While there are numerous examples of documented coordinated transportation systems in the USA, Canadian examples proved difficult to find. A few accounts of coordinated transportation systems in Canada were verbally mentioned in interviews with planners, however, no documented evidence was located. Additionally, one of the examples given was of a non-profit transportation provider that had just begun service in September of 2008. Three examples of documented coordinated transportation systems from the USA are given here. They were chosen to represent 3 different types of coordinated systems: rural, suburban/rural, and suburban/urban.

2.5.1. Urban/Suburban Coordinated Transportation

Urban coordinated transportation systems are less common than rural and suburban ones. This is likely due to the presence of plentiful transportation options common to larger metro areas. This does not, however, mean that coordination tactics and underpinnings can not be beneficially used in larger metro areas. In Portland, Oregon, 32 different human services and transportation non-profits and agencies have come together under the sponsorship of Tri-Met, the Portland area transportation authority, to coordinate transportation for older adults and people with disabilities (Burkhardt et al 2004).

This organization provides service to over 8800 registered people in the metro area as well as suburban and rural areas around the city. The service area is 7840 square kilometers in size and populated by 1,569,953 people. Of this population, about 10.3% or

161,482 are over the age of 65.³ Over 240,000 trips are provided each year (Burkhardt et al 2004).

The coordinated program, while funded in part by Tri-Met, is run by a non-profit organization called Ride Connection. This non-profit was set up by Tri-Met in response to the need seen by an advisory committee for coordinated transportation. A number of agencies and other service providers were seen to be providing special needs transportation, but many did not have experience in offering such transportation. Many areas received more transportation than was necessary and some areas received little to none. Ride Connection brought together senior centres, mental health clinics, health care providers, community centres, independent living facilities, churches, taxi companies, private transportation providers and other community organizations to provide coordinated transportation (Burkhardt et al 2004).

The stated mission of Ride Connection is: to serve people without other transportation options; coordinate transportation services, training and safety programs; secure financial, volunteer and equipment resources; and act as a liaison between the transportation providers and funding organizations. Ride Connection relies heavily upon volunteer drivers, which helps keep costs down. All the vehicles are owned by Ride Connect while being maintained and operated by the 32 different agencies Burkhardt et al 2004).

Funding comes from an array of sources. Federal, state, county and city funds along with foundation and other private grants have been tapped to help fund the service. Total funding for Ride Connection was \$4.6 million in 2000-2001. Most of this funding goes to operating expenses. In addition to providing funding, Ride Connection plays a

³ Census projections come from http://quickfacts.census.gov/qfd/maps/oregon_map.html.

planning role in identifying needs, filling gaps in service, and advocating on behalf of its agencies. The benefits that have been realized through Ride Connection include: greater efficiency; fewer overlaps of service; more rides provided; lower costs; more funding sources available to the different agencies; higher quality and safer services; and more flexibility to respond to needs than a public agency. Ride Connection provides resources to the agencies taking part, but it does not ask that they homogenize their services. This allows each agency to better respond to the needs of its clientele (Burkhardt et al 2004).

2.5.2. Suburban/Rural Coordinated Transportation

Suburban and rural coordinated transportation systems were the most common type of system. This is likely due to the larger tax base available for funding and the lack of sufficient transportation alternatives that exist in lower density communities. Suburban sprawl communities are extremely difficult to serve well with fixed route services and substitutes need to be found for people who no longer drive, but wish to stay in their homes and communities. Bay County, Michigan, has consolidated and will coordinate its public transit system and any interested human service providers (Burkhardt et al 2004).

Bay County, Michigan, coordinates its transportation under Bay METRO. They serve a countywide population of about 110,000 people, of which 15.2% (16,744) are over 65. About one third of this population lives in Bay City, a small metro area, with the rest living in suburban and rural areas. The county is 1235 square kilometers and Bay METRO covers the entire area. Over 650,000 trips are provided each year on everything from fixed route, paratransit, curb to curb, and door to door services (Burkhardt et al 2004).

Coordination came about in Bay County due to a statewide effort. A property tax levy in the county provides much of the systems yearly cost of \$5.6 million. Fixed transit services are provided in Bay City. Weekly or bi-weekly flexible routes serve the rest of the county. Human services agencies provide other transportation to their client groups, with financial support of Bay METRO. Private transportation service providers are contracted to provide service after hours. Bay METRO purchases and maintains the vehicles. Drivers are trained and reimbursed for trips they provide. Trip requests for non-fixed route service go directly through the end provider (Burkhardt et al 2004).

The coordination of transportation services in Bay County was so successful that a neighbouring county with 15,000 residents was included. Benefits realized by coordination included: lower costs, more trips, more funding sources available to smaller operators, higher productivity, and less duplication of services (Burkhardt et al 2004).

2.5.3. Rural Coordinated Transportation

In terms of successful rural coordinated transportation systems, coordinated transportation in Sussex County, Delaware, was one example. Sussex County takes up the lower half of the state of Delaware. It is 2429 square kilometers in size. The 2007 census projection estimated a population of 183,798 people. The county is mostly rural, with 25 small towns, the largest of which is about 8000 people. About 20% of the population (36,760 people) is over the age of 65, and this is expected to grow considerably over the next decade.⁴ The large aging population and the low density of the county have made it difficult to serve older adults efficiently with transportation options

⁴ Census projections come from http://stateplanning.delaware.gov/information/dpc_projections.shtml.

other than the personal vehicle. Demand had been growing for transportation options, and no individual organization could meet those needs (Sampson 2007).

A number of organizations with transportation services existed across Sussex County, however, they did not all independently offer all the services required by seniors. In addition, not all seniors had access to all the organizations' modes of transportation. A need was seen to coordinate services between the different organizations. In 2006, eleven organizations came together to coordinate their services for older adults and people with disabilities. A number of meetings were held to first determine how to improve services across the county (Sampson 2007).

The organizations involved included senior centres, disability resource centres, community colleges, and other non-profit agencies. The first step to coordination was listing all of their transportation resources and determining what transportation services already existed. Realizing that existing resources were not sufficient to meet the rising demand, the organizations designed a coordinated system that would work for them (Sampson 2007).

The second step was identifying the hierarchy of designating trips to certain modes of transportation. Public transit was the first option, followed by transportation offered by the coordinating agencies, based on efficient and providing the best service possible. If the organizations couldn't provide the trip, the final option was to assign the trip to the volunteer drivers. Volunteer drivers for all the different organizations were combined into one operation, again to improve efficiency (Sampson 2007).

Once the hierarchy was in place, the group of organizations worked on the third step: a system for assigning trips. This was done with the assistance of a local computer

programmer who built a database of users and resources that could then organize bookings and monitor trips. Transportation coordinators were then hired to manage all the bookings and dispatching duties. These coordinators worked with all member organizations to identify trip requests and assign vehicles to specific trips (Sampson 2007).

The result of these coordinated efforts has been a rapid growth in trips delivered, heightened efficiency, and increased mutual trust between the different organizations, staff members and passengers. The success of the project led the organizations to expand service hours, increase trips delivered and augment participation among existing members of the group while enticing new organizations to take part (Sampson 2007).

While this example of coordination was on a small scale, the lessons learned from the approach taken by Sussex County could be applied to larger metropolitan areas like Victoria. The main crux of the experience is building trust between organizations, defining goals and objectives, pinpointing how rides will be provided and securing funding for transportation provision.

CHAPTER 3: Research Methods

This chapter details the research methods employed for this practicum. One-on-one interviews and a survey were used to collect data relevant to the practicum topic. The interviews were in person or over the phone. Two different sets of interviews took place. The first set was with individuals who work with older adults. They were asked about the needs of older adults. The second set of interviews was with planners and a service provider. They were presented with the results of the surveys, first set of interviews, and the author's conclusions and recommendations. Their feedback was incorporated into the results and conclusions. Surveys were mailed to organizations that had agreed to fill them out. A variety of organizations were contacted and recruited to take part. The survey was designed to inquire as to the transportation provided by the organization.

3.1. Surveys

The survey is a useful research instrument for doing quantitative work. The survey aimed to address the following hypotheses:

1. There are a number of underutilized vehicles, owned and run by different organizations in the community that could serve older adults.
2. Most organizations do not work closely with any other organization to achieve better provision of transportation services.

The survey was undertaken to look for regularities among the different identified organizations. Organizations were identified through the local phone book. The following types of organizations were contacted: older adults' homes, older adults' centres, transportation companies, churches, recreation facilities, non-profit agencies and volunteer agencies.

The survey was chosen as a research method specifically to allow easy and quick comparison of existing services, linkages, eligibility, and the size of the organization. Using the 29 returned surveys; a generalized comparison could be made. While the 29 organizations participating are a small sample of the total organizations in Victoria, they are a representative group. The mailing included a brief description of the project, a release form on University Letterhead and the survey. All surveys were returned with a signed release form.

The survey included 25 questions and space at the end to add any comments the participants felt was relevant. The questions consisted of 7 pre-coded questions, 8 questions requiring a numerical answer, 8 open-ended questions, one yes or no question, and one question at the end asking the participant to define 'accessibility' and 'mobility'. The questions were designed to link organization type (seniors' home, senior centre, church, private company, etc...) to the quantity and quality of service they provided. Quantity questions inquired into vehicle type, service hours, trips provided, and number and type of employees. Quality questions inquired into areas of Victoria that were served, coordination levels between organizations, cost of service to the end user, and accessibility of service. The research instrument can be found in Appendix A. The release forms signed by participants can be found in Appendix D.

3.2. Interviews

Interviews are a method of research used to try to gain insight into individual opinions and knowledge. Two sets of interviews were undertaken. In the first set, opinions were sought from people who work with non-driving older adults, on what they perceived to be their clients' transportation needs. While the issues associated with non-

driving older adults are well-known, Victoria-centric data was needed. The interviews were structured to define solid views on mobility and accessibility, and to inquire more deeply into the most important aspects of those concepts, and how the interviewees felt about them (Zeisel 1981).

The qualitative interview featured open-ended questions which permitted the respondent to take their answer in any direction. The order of the questions was flexible; some could be left out depending on the direction of the responses. The use of probing questions is very important in unstructured interviews. They can be used for a number of purposes, including clarifying a point, further explaining what was meant, promoting flow, encouraging more depth of discussion, or directing the conversation. A qualitative interview is often referred to as an unstructured interview (Zeisel 1981).

Six people were contacted about participating in an interview. All were previously known to the author through work-related duties.⁵ The six individuals were selected because of their long-standing work in organizations dealing primarily with older adults. It was assumed these individuals knew a considerable amount about their clientele's needs, wants, problems and issues regarding transportation. The individuals included a manager of adult day programs with the local health authority, a wellness centre coordinator, an executive director of a non-profit society that serves older adults, a director of a older adults centre, an executive director of a non-profit charity working with caregivers and a coordinator of volunteer services at a large older adults' facility.

The 6 individuals were selected not only for their presumed knowledge of older adult needs, but also because they represent older adults in a wide variety of situations

⁵ The author works as a transit planner for the local transit company, BC Transit. The interviewees are all associated with the Accessible Transit Advisory Committee that works with BC Transit to promote accessibility issues.

across the greater Victoria area. Two individuals worked in the suburban communities of Sidney and Langford while the other four worked in Saanich or Victoria (city). However, all interviewees had jobs that put them into contact with older adults across the region. Two worked for non-profit agencies, two worked in different positions for the local health authority and two worked for older adult centres.

The following questions were asked of the first set of interviewees. The questions were designed to allow the interviewees to express their opinions and provide the author with a Victoria-centric look at the issue of older adult transportation needs and how older adults used available transportation modes.

1. Are you or is your centre involved with older adults who do not drive?
2. What do you see as the main transportation needs of your clientele/customers/residents who don't drive?
3. How do they maintain mobility?
4. What transportation services do they use?
5. What do they like about these transportation services?
6. What do they not like about these transportation services?
7. What are the ways these older adults coordinate and arrange their transportation?
8. Do they travel more or less outside of the home now that they don't drive? What are the reasons behind this?
9. How has living without a personal vehicle changed how they get around?
10. How would you improve these transportation services to better serve them?
11. What would make it easier for them to maintain mobility (short of owning and operating a private vehicle)?
12. What quality of life issues do you see as being associated with older adults no longer driving?
13. What do you think their future transportation needs will be?
14. Are there any other transportation-related issues that you think need to be discussed?

In the second set of interviews, two transportation planners and one manager of a transportation provider were consulted⁶. These qualitative interviews asked for feedback on the author's findings and proposed interventions. The first transportation planner had

⁶ All 3 interviewees were known to the author through his work at BC Transit.

25+ years of experience and had worked extensively on accessible transportation. The second transportation planner had 15+ years of experience working with a variety of transportation systems. The manager of a transportation provider had worked in the transportation industry for 20+ years and had worked extensively with older adults. A one page summary of findings and proposed interventions, found in Appendix B, was read to the interviewees and they were asked to comment on any aspect of it. In-depth feedback was received on the role of the planner and the role of coordinated transportation systems.

Eight of the interviews took place at the participant's place of work; one was conducted over the phone. The interviews lasted from 20 to 40 minutes. They were digitally recorded and notes were taken during the interviews. Important parts of the interviews were transcribed. They were not transcribed verbatim. No remuneration was offered to the participants. All participants signed a release form provided to them on University Letterhead. The research instruments for the interviews are located in Appendix B. Release form wording is located in Appendix C. Ethics approval is located in Appendix D.

CHAPTER 4: Data Analysis

This chapter presents the results of the interviews and the surveys. The findings are presented in-depth and analyzed. The first section contains the outcomes of the surveys. The second section contains the outcomes of the first set of interviews. The third section contains the outcomes of the second set of interviews.

4.1. Survey

A survey was administered to a variety of organizations that are involved with older adults and/or transportation in Victoria. Organizations that were surveyed include: older adults' homes, older adult centres, transportation companies, churches, recreation facilities, non-profit agencies and volunteer agencies. The survey was designed to address the second research question: What transportation options currently exist for older adults? The survey contained 25 questions. The 29 returned surveys were evaluated, tabulated and analyzed. The survey instrument is located in Appendix A. The results of this analysis are presented here.

4.1.1. Types of Organizations Surveyed

The 29 organizations surveyed include 14 older adult homes and/or centres, six public and private transportation companies, four volunteer organizations (though a total of eight respondents have volunteers working for their organizations), and five churches. Of the 29 organizations, 24 owned and/or operated their own vehicles that could be used for transporting older adults. This also included organizations that worked with volunteer drivers using their own vehicles. The five organizations that did not own or operate

vehicles included two churches, two older adults' residences, and one organization that misunderstood the question.

4.1.2. Transport Provision Requirements

Eligibility is an important aspect of many different organizations' transportation provision. In an attempt to limit demand for services with limited capacity, organizations are either forced or mandated to serve only certain people and certain destinations. The public transportation providers, which include taxi companies as well as the local bus company, do not have any criteria for eligibility. The local taxi companies will transport people anywhere within reason and for any reason, though they are only allowed to pick up people within Victoria. The local public transit company will also transport people for any reason to any stop along the established routes. After 7:00pm, the public buses will stop anywhere they can safely stop along a route on request.

The different older adults' residences limited transportation to their own residents, though guests were allowed. Trips made by these different residences are often scheduled a month in advance and residents must sign up to get a seat. The residences generally owned vehicles and used them a few times a day.

In all, 12 organizations provided transportation only to individuals affiliated with their organization (eg: a resident, a member, etc.). There were seven organizations capable of transporting people with disabilities. Eight organizations limited their services to people over the age of 65 and eight organizations provided transportation to anyone that met their eligibility criteria. Four organizations provided transportation to anyone, within reason (eg: no drunk people, no violent people, etc...). Those surveyed were allowed to choose more than one answer.

Most organizations limited the use of their transportation services to specific purposes. The survey listed shopping, medical appointments, non-medical appointments, errands, social visiting/events, entertainment and social programs as options, while leaving a blank for any other purposes. The different older adults' residences were most likely to provide transportation for a number of different trip purposes. This is perhaps due to the transportation being funded by their residents. Public transportation companies made no limitations on trip purpose while churches and volunteer organizations were more likely to strictly regulate the purposes for which they would provide transportation.

Because churches and volunteer organizations often did not own their own vehicles, they were reliant on volunteers to provide not only their time, but also their vehicle. This limited the number of vehicle hours available and thus required these organizations to prioritize trip purposes. For churches, this usually meant they provided transportation for church events and medical trips. Volunteer agencies usually provided medical trips first and foremost. Some volunteer agencies were only able to provide medical trips. Others would allow any type of trip purpose, so long as a volunteer was available.

In total, the 24 organizations answered the question on trip purposes that were allowed. There were certain purposes that were more prevalent. Nineteen organizations provided transportation to social programs, 15 for entertainment, 14 for shopping, 13 for medical and non-medical appointments and nine for different errands. In the 'other' category, three organizations reported that they provided scenic drives.

4.1.3. Workers and Volunteers

The organizations surveyed ranged from very small to very large in terms of paid workers. The smallest organization had one paid employee, while the largest had over 700. The churches and volunteer organizations tended to have the fewest paid employees, while the older adult residences had anywhere from 17 to 70. Outside of the public transportation companies, most organization tended to have only one to three paid employees directly involved in transportation services. This was the case regardless of actual size.

As was to be expected, the volunteer agencies had the largest pool of non-paid volunteers working for them. The largest number of volunteers worked for an older adult home/older adult centre, while the four volunteer agencies had 40, 193, 200 and 260 volunteers. The public transportation companies, as was also expected, had no volunteers. The older adult residences all had volunteers working for them, but often very few. The average was around five.

Volunteers were, more often than not, *not* involved in transportation. Of the 23 organizations answering this question, 14 had no volunteers involved in transportation, six had five or less involved in transportation, while the remaining three had between 50 and 75. The larger group of the remaining three was a volunteer agency specializing in transportation.

4.1.4. Service Area and Hours

Every organization surveyed set specific service hours and boundaries within which they would provide transportation. These boundaries and hours were set either by: market demand, in the case of public transit and the taxi companies; boards of governors, in the case of some older adults' homes and other non-profit organizations; to support

service mandates, in the case of volunteer organizations; and by residents' needs and requests, in the case of other older adults' homes.

There are 15 municipalities considered to be part of Victoria. They are: Victoria (city), Saanich, Esquimalt, Oak Bay, Central Saanich, North Saanich, Sidney, View Royal, Colwood, Langford, Highlands, Metchosin, Sooke, East Sooke and the Gulf Islands. Because the Gulf Islands are often considered outside of Victoria by different organizations, they were only served by one older adults' home. The Gulf Islands were included in the survey because they are legally a part of Victoria. The areas served by the different organizations varied from one to thirteen. Public transit, taxi companies and one volunteer agency served all communities outside of the Gulf Islands. Older adults' homes and churches tended to serve only the municipality they were located in and municipalities that were immediately adjacent.

Victoria (city) was the most commonly served municipality; 19 organizations provided it with service. Saanich was served by 16 organizations, Central Saanich was served by 12, Oak Bay by 11, Esquimalt by nine, Sidney and North Saanich by eight, View Royal by six, Langford and Sooke by five, Colwood by four, and Metchosin and East Sooke by three. While every effort was made to survey organizations in all communities, Victoria (city) and Saanich are home to the most organizations due to their sizes. As a result, the closer one lives to Victoria (city) or Saanich, the larger number of organizations there are that provide transportation. The further one lives from the denser, older parts of Victoria, the fewer organizations there are to provide services. This is an important consideration in providing older adults with an appropriate place to live. Rural

communities, with their low densities, are harder and more expensive to service, and therefore, are served by fewer organizations.

The hours of operations for the different surveyed organizations ran from rides only on request or pre-booking, to twenty-four hours a day year round. Volunteer organizations usually ran service during working hours, while churches ran Sunday-only service. The older adults' homes were all uncommitted to actual service hours, preferring to allow use of their vehicles as needed.

4.1.5. Trip Booking

Outside of the scheduled trips offered by some organizations, booking is mostly done in person or over the phone. This is in keeping with the way older adults normally like to organize themselves. A few organizations offer web booking or allow caregivers to book transportation; however, these are seldom used. The amount of time needed for a trip to get organized varies from organization to organization. Typically, organizations need about one to two days to arrange transportation. Volunteer organizations as well as paratransit usually ask for three days to a weeks notice, but they are often able to fulfill last minute requests. Older adults' homes often book their vehicles according to a monthly calendar. These calendars usually allow for last minute trips or changes. Residents usually have to sign up to get a spot in the vehicle.

4.1.6. Vehicles Trip Provision and Capacity

Organizations surveyed either had volunteers using their own vehicles to provide transportation, or they owned and operated vehicles themselves. Older adults' residences and centres surveyed all owned at least one vehicle of their own, except one residence

that relied on 60-70 volunteer drivers, to provide transportation to their residents. Three older adults' residences reported owning an accessible vehicle of some sort. Most of the accessible vehicles, however, belonged to either the public transit company or its para-transit subsidiary. Slightly less than one tenth of all non-public transit vehicles were considered accessible.

The number of trips that the different organizations could provide was closely related to their size and the number of vehicles they used. Public transit and taxi companies could provide the largest number of trips per day, while churches provided very few. It seemed clear though, that at least four to eight trips a day could be made by every older adult's residence. Based on the size of the bus/van they used, this could amount to 20 to 100 plus passenger trips every day. The volunteer organizations, relying completely on volunteer drivers and their own vehicles, provided anywhere from 100 to over 200 trips a day. The organizations all tended to state that their passenger trip capacity was about the same as the number of trips they were actually providing.

4.1.7. Funding

Funding for transportation services came from a number of different sources, depending on the organization. Public transit received subsidies from local and provincial governments; these subsidies combined with fares constitute the majority of cash flow. Private transportation companies recouped all their expenses through user fees and advertising. Older adults' residences funding came out of the general operating fund for the residence. Depending on the funding structure, this money could come from resident condo fees, rent, government funding or donations. The volunteer organizations all relied

on volunteers to provide service, though some government funding was used. Churches relied on volunteers as well.

User costs varied by organization. Public transit companies recouped about 50% of their cost through the fare box, while taxi companies recouped 100%. The older adults' residences normally provided their transportation free of charge to residents. One older adults' residence charged passengers \$3.50 per ride. Volunteer organizations provided all their services free of charge as well, though clients had to pay for parking.

In the future, the rising cost of gas will be a pressing issue for organizations providing transportation. Volunteers will have less disposable income to spend on providing trips; organizations will have diminished capacity to provide trips with the same amount of funding; and costs will increase for those wishing to use transportation. Changes to how organizations provide transportation will follow, as the costs of doing so increase.

4.1.8. Promotion

An important aspect of older adult oriented transportation is how organizations can make older adults aware of the different transportation services available to them. To this end, the survey asked how they promoted their services. Most organizations only promoted services internally because they were limited to people affiliated with them in some way. The volunteer organizations promoted themselves through different local newsletters, mail outs, brochures, presentations and word of mouth. Public transit companies promoted services though limited advertising. Churches and older adults' residences did not promote services externally or internally in some cases.

4.1.9. Relationships with Other Providers

In hope that the coordination of services had begun, the survey aimed to identify how different organizations providing transportation worked together. It is believed that by working together, organizations provide a higher level of service to the people they serve. HandyDART was the most common response given to the question asking about coordination efforts. Taxi companies were the second most common response. A total of 13 different organizations worked with handyDART. As disabilities are common among older adults, handyDART is widely supported and promoted by health professionals and others who work with older adults. Churches reported no coordination efforts with transportation service providers. The volunteer organizations worked with each other in some cases.

The nature of the relationships between different organizations usually boiled down to asking for help when they could not provide the transportation themselves. Some of the volunteer organizations shared scheduling and vehicles. In all, this portion of the survey was useful to show that different organizations really do not work with one another, even if they are providing equivalent services. The different organizations worked together only if they could not accommodate the users themselves.

4.1.10. Summary

The survey demonstrated that underutilized transportation services exist and organizations do not coordinate with each other except to call cabs or refer people to handyDART. Many organizations that work with older adults provide transportation in some form, though the utilization of the vehicles varies. The survey revealed that excess

capacity exists and coordination does not. The coordination of transportation resources could better meet the needs of older adults at minimal costs.

4.2. Key Informant Interviews: Set One

Six interviews were conducted during the month of March 2008. All of the interviewees had at least 15 years of experience in working with older adults; 4 interviewees had more than 30 years. The collective wisdom of this group is assumed to represent an accurate picture of transportation use, need and wants among older adults in Victoria. The 14 question interview can be located in Appendix B.

4.2.1. Transportation Needs

The first question inquired about the transportation needs of the specific older adult user groups with whom each of the interviewees worked. All the interviewees responded similarly, though with different weighting to different needs. It was generally recognized that older adults, first and foremost, needed access to medical care of any kind. Medical appointments were seen as a priority for , and thus were typically served first by the different transportation providers. As a result, medical purposes were the sole reason for which older adults used certain types of transportation. The volunteer driver agencies in Victoria often had only enough man-power and vehicles to meet non-emergency medical transportation.

The second most common response was the need for transportation to social activities. Social activities included visiting friends or relatives and going to a senior centre. Social activities that involved older adults leaving their home were closely related to health and well-being (Murtagh and Hubert 2004; Burkhardt et al 2002; Vasconcellos

2001; Turcotte and Schellenberg 2007). There is a close correlation between attending social activities and personal well-being.

The interviewees felt that shopping, leisure activities and recreational activities were important transportation needs. These types of activities were also social in nature and contributed to the well being of older adults. They were mentioned separately from social activities by 3 of the interviewees as they were often seen as different from purely visiting friends or relatives and attending functions at an older adult centre.

4.2.2. Transportation Modes

To meet the transportation needs of older adults who do not drive, the interviewees coalesced around a few different modes: public transportation, para-transit, taxis, and volunteer drivers. My position with the local transit agency may have affected the response to the questions inquiring about transportation modes. In addition to this possible bias, 5 of the 6 interviewees are a part of the local public transit company's accessibility advisory committee. As a result, the answers given often revolved most heavily around bus service and handyDART (the name for the local para-transit service). Regardless of this possible bias, all interviewees mentioned a number of other modes of transportation, implying that they understood the nature and limitations of transportation.

The public transportation system, hereafter known as 'the bus', was the most common response to transportation need and meeting that need for older adults. The four interviewees that worked within the municipalities of Victoria (city) and Saanich found current bus service to be good. The interviewees in Langford and Sidney also found bus service good, but expressed a need for additional older adult-focused services in their respective communities.

4.2.3. Maintaining Mobility

When asked about how older adults who do not drive maintain their personal mobility, a number of different answers were given. Almost all of the interviewees agreed that the conventional bus and handyDART played a major role in maintaining mobility for older adults. The literature showed that older adults who never or seldom rode transit during their younger years were less likely to take it when they found themselves without a personal automobile (Burkhardt et al 2002).

These forms of transit, however, were not mentioned first by four of the interviewees. Family, friends, neighbours and walking were the first four forms of mobility mentioned. Personal service offered by family, friends and neighbours is the preferred type of transportation for older adults. For a variety of reasons, many older adults expressed hesitancy in asking their family and friends for rides. Reasons included: not wanting to be a burden; not wishing to make someone go out of their way; and wanting to maintain more independence. Research has shown that while rides with friends, family and neighbours are generally accepted, it is not a replacement for the automobile and such transportation does not meet all the mobility needs of older adults (Gillan and Wachs 1976, Kostyniuk and Shope 1999, Sterns and Burkhardt et al 2003).

There is a great need among older adult populations to be independent. A number of factors influence this need. To be independent, for many older adults, entails mental and physical capability. A driver's license is seen as a status symbol (Hine and Grieco 1976). When older adults lose their license, it is often tantamount to being declared mentally incapable. This can lead to depression which can then lead to further health

problems. As such, it is important to provide alternative forms of transportation to help older adults maintain mobility.

Enabling older adults to walk to places is an important goal for transportation planning. Walking is the most common form of transportation for older adults. Difficulties older adults have with walking have been noted: uneven sidewalks, hills, ramps, traffic, pedestrian crossings, steps and carrying bags/objects (Hine and Grieco 2003). Because of the low density nature of much of Victoria's built form, most people do not live a walkable distance to needed services. Additionally, Victoria is hilly, has numerous sections of roadway without sidewalks, features roads with no cross walks, and includes a number of wide roads with intersections designed to move car traffic, not people. The compounded problems experienced by older adults in Victoria means that walking is not an option for certain activities and destinations.

Using family, friends and neighbours for transportation needs raises another set of obstacles. All the interviewees assumed a considerable amount of rides were being provided in this way. However, as older adults age, so do their friends. One of the interviewees commented that, often, she has mistaken the driver for the client at her day program! Older adults are often hesitant to ask family for rides, as they do not wish to be seen as a burden. One interviewee commented, "They won't ask. 'My family's working, they're busy.'" Because of the difficulty in measuring the use of family, friends and neighbours, this practicum focuses on publicly available services and options. For most older adults, publicly available transportation options are supplemented or supplanted by the use of family, friends and neighbours whenever possible.

The conventional bus service in Victoria is an important part of the transportation mix for older adults who do not drive. While bus service is often seen as lacking, and direct service from origin to destination is rare, the author heard many positive and negative comments about it from older adults. Some of the more common positive comments heard included: it is convenient; it goes where I want it to; there are lots of buses to choose from; I can take my walker/scooter/wheelchair right on the bus; and the drivers are very kind and helpful. Some of the negative comments heard by the author included: the bus stop is too far away; there is no place to sit at the bus stop; the buses are too crowded at busy times to find a seat; it is too difficult to figure out the schedules; and the bus takes too long.

Taxis were mentioned as an important form of transportation for older adults. While expensive, they were seen as fulfilling an important need: spur-of-the-moment trips. One interviewee said, "They [older adults] take the cab at night. We have a lady who volunteers here, is 90 and she takes the bus. She doesn't like to take the bus at night." Taxis are used to supplement other forms of transportation.

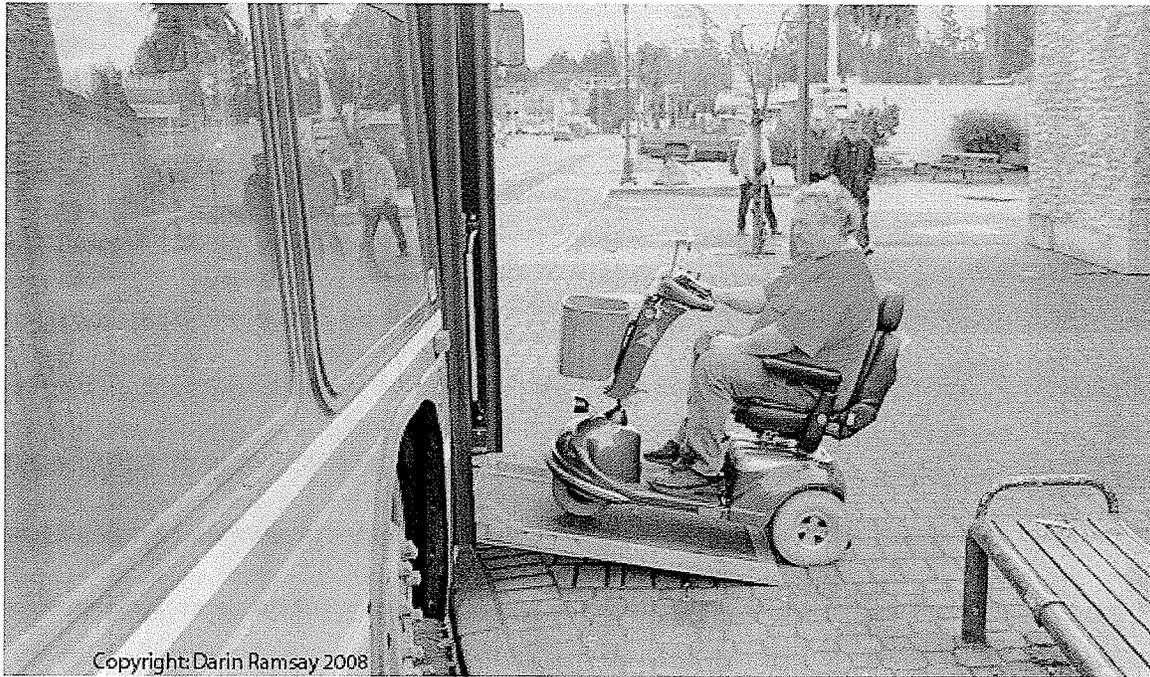
One program offered in Victoria is subsidized taxi fares, called taxisavers. This program is administered along with handyDART. One must first meet the qualifications for handyDART before they can buy taxisaver coupons. Two interviewees mentioned taxisavers in their interviews. One said, "There are some [older adults] that won't use handyDART, but will use taxisaver coupons." Because of the waiting and pre-booking required by handyDART, the system does not allow for last minute trip requests. Taxis, however, are seen as almost as good as a personal automobile.

While older adults do not use taxis very often, those who do are either very wealthy or very poor. Wealthy older adults use taxis as a substitute for the automobile, while poor older adults use it mostly as a substitute for door to door service in emergency situations. What is common, however, is most taxi trips, and indeed most trips using any mode, by older adults, are of a relatively short distance. The BC Taxi Association estimates that the average trip distance taken by cab in Victoria is 4-5 kilometres with fares around \$10. Older adults with access to a multitude of transportation options were less likely to see the personal automobile as essential to their well-being. These findings imply that there is demand for transportation systems serving shorter distances (Gillan and Wachs 1976, Burkhardt 1999).

Volunteer drivers were mentioned by all the interviewees as an extremely important source of transportation for older adults. Due to the limited availability of volunteer drivers, most of the volunteer driver agencies only have enough resources for transportation to and from medical appointments. Volunteer drivers are seen as an ideal form of transportation for most older adults. This is because the driver helps the older adult to and from the doors of their origin and destination. They wait for the individual to finish their appointment, and then help them back to their origin. Door through door service is especially relevant for people who are frail or have a disability.

The last mode of transportation mentioned by two interviewees was the use of scooters. Scooters are small battery powered vehicles that can be driven along sidewalks and into buildings. They have become increasingly popular among older adults, especially those who can no longer walk long distances or stand for prolonged periods of time. The interviewee from Sidney mentioned that that community's small dense urban

form lent itself well to the use of scooters. The author has noticed that there is a considerable use of scooters in downtown Victoria (city), on transit buses, on handyDART, and near to activity nodes such as malls and town centres. Their role in helping non-driving older adults maintain mobility cannot be understated.



Caption: a battery powered scooter boarding a bus.

4.2.4. Transportation Likes

The interviewees were unanimous in their agreement that older adults preferred door-to-door service. The door-to-door services referred to by the interviewees included handyDART, taxis, volunteer drivers, and their family, friends and neighbours. Research has shown that older adults prefer transportation that most emulates a personal vehicle (Burkhardt et al 2002). The types of transportation most closely associated with the personal vehicle allowed for: spontaneity, variability, availability 24-7, accessibility, reliability and door to door.

The interviewees tended towards nominating volunteer drivers as the ideal type of transportation for older adults who no longer drive. Specifically, the personalized help and one-on-one attention from the driver are aspects of volunteer drivers that older adults prefer. Because of reduced mobility and higher rates of disability, any type of transportation that provides for the lowest expenditure of energy will be the most popular type of transportation.

Dependability, or reliability, was mentioned by two interviewees as an important aspect of certain types of transportation. These words were used to describe volunteer drivers and taxis. This is an enormously important aspect of transportation for older adults, as the energy required to do many daily living tasks can be made either easier or more difficult based on their stress levels. It is often assumed by transit professionals that older adults do not need fast, efficient service because they have more disposable time. This is not the case. Older adults are as time-sensitive as the average person. Reliability is also the number one concern among older adults (Burkhardt et al 2002).

Bus services along busy corridors and handyDART service are considered inferior to taxi and volunteer services. For older adults with fewer mobility restrictions due to disability, frequent bus service is highly used and a close substitute for a personal car. Since frequent bus service is relegated to busy and dense corridors in the region, place of residence plays an important role in how often older adults use bus service. The Victoria handyDART system is well funded and provides service for all trip types and purposes. This is in contrast to many systems that only have the resources to provide trips for the most important uses, such as work trips and medical trips. One interviewee mentioned

that they knew older adults appreciated the fact that handyDART could be booked no matter the trip purpose.

Another appreciated aspect of certain types of transportation, are ones that provide a social opportunity. Two interviewees mentioned this as a strong 'like' by older adults. Volunteer drivers, family, friends, and neighbours most often provide such qualities of transportation. For older adults, who make fewer trips outside the home as they age, every social opportunity is important. To combine necessary trips, such as visiting a doctor, with an opportunity to interact with another person or persons, makes such trips not only easier and less stressful, but also more healthy for the individual.

Older adults like when they know the driver of the vehicle in which they are traveling. This was cited by one interviewee and is also mentioned in the literature. The reasons behind this include giving older adults a sense of comfort, making them more confident, and lowering the stress involved in making the journey. As the interviewee said, "They like it when they know the driver, be it on the bus, [or] taxisaver. They have confidence, albeit they have 600 people [customers], but they'll remember where I live." Familiarity breeds comfort, and people who are comfortable doing something, are more confident. With confidence comes a willingness to continue with something that works.

4.2.5. Transportation Dislikes

Six main themes emerged from the responses to the question: What do they *not* like about these transportation services? The themes were: taking the bus is difficult; handyDART problems; taxis are too expensive; drivers are rude; waiting in the inclement weather is uncomfortable; and trip planning is difficult and stressful.

The perceived and actual difficulty in taking the bus is a considerable barrier to older adults. Barriers include, but are not limited to: having a seat on a vehicle; not having to stand while waiting for a vehicle; not having to wait long; not having to climb stairs; not having to walk a long distance to catch the bus or to get to the destination from the final stop; making transfers; planning trips using schedules; crime and fear of crime; accessibility of bus; and affordability. These barriers all work against getting older adults on the bus. Small improvements have been made over the years: low floor buses making embarking and disembarking easier; better amenities at stops make waiting more comfortable; small community style buses bring service closer to people in lower density neighbourhoods; unlimited transfers make trip chaining easier; and a local travel training program gives older adults more confidence in taking the bus. As one interviewee said, “It’s far too onerous for many older adults with mobility issues to get downtown or to get to Vic General [Hospital] by bus, because it will mean transferring. It may mean standing outside in inclement weather; making sure you’re making your connection; it’s just often too much for an older adult who’s already ill perhaps...”

HandyDART is a service that is both loved and hated by the users. Because of its booking policies, handyDART, is disliked by many users – simply because it does not allow for spontaneity. Other reasons for disliking handyDART include: having to wait for pickups (the pickup window is 30 minutes in Victoria); trips take a considerable amount of time when compared to the automobile; not getting direct service; and not always being able to book for exactly when one wishes to travel.

As previously mentioned, older adults are as time sensitive as anyone else, and the handyDART buses are not a quick and efficient way to travel. One must first book in

advance. Victoria's handyDART allows for pre-bookings up to 2 weeks in advance, and most (about 70%) trip requests are met with as little as 2 hours notice. However, during busy times of the day, there are more trips that cannot be made due to service limits. These pre-booking limitations mean the system does not allow for most spontaneous trips. When booked, a time window is given to the client that defines when they can expect the handyDART vehicle to pick them up. This window of time is 30 minutes and the client must be ready to go at the beginning of the window. HandyDART receives numerous complaints about this aspect of the service. Once on board, the bus often has to make a number of pick-ups and drop-offs, slowing service down. Trips can be as long as 90 minutes depending on the origin and destination. One interviewee commented, "handyDART is a great service, it just doesn't suit older adults that have more health issues in that the time involved is just too much." Other comments on the handyDART system were:

"I think they wish they could just hop in their own car sometime, because it's more convenient. With handyDART, it's more the pick-up and drop-off times with that and always having to plan ahead. They don't have the flexibility there."

"I think the challenge is booking ahead of time. They don't like sitting and waiting for the handyDART to show up."

Taxis were mentioned by 5 of the interviewees as a transportation option with a few aspects disliked by older adults. The things most often disliked about taxis were their cost and the temperament of the drivers. Due to competitive pressures in the taxi industry, speed is often of the essence. My own experience as a taxi driver has given me some

insight into this industry.⁷ Older adults do not move as quickly as younger people, and for taxi drivers, any delay can mean not getting the next fare and not making enough money that day. As a result, older adults often complain that drivers are impatient and not as helpful as they should be. One interviewee was especially quick to talk about this aspect of transportation dislikes. She said, “Here’s a note I made about taxis, comments about the drivers being impatient and rude and one fellow’s comment: ‘In too much of a hurry for the slow old folk’.” While this complaint is genuine, most older adults have a generally good experience on most taxi trips.

The expense of taxis is another major concern. Most taxi trips made by older adults are of a shorter distance. This is not only due to the cost, but also because older adults often live close to destinations they patronize. The taxisaver program previously mentioned helps subsidize the cost of these shorter trips. In Victoria, handyDART clients are able to purchase 80 dollars worth of taxi coupons for 40 dollars. These coupons can be used like cash with taxi drivers. The aim of the program is to enable older adults to make journeys handyDART can not provide (ie: spur of the moment travel, travel late at night). However, taxi trips remain expensive. The interviewee from Sidney stated, “Taxis are too expensive. Now certainly we toot up handyDART and the taxisaver coupons as much as we can and that’s good for people that live locally to use taxisavers, but if we’re talking about going into Victoria (city) and back, that’s a 100 dollars!” Taxis are ideal form of transportation for older adults, but can be cost prohibitive.

4.2.6. Coordinating and Arranging Transportation

⁷ I worked as a taxi driver during the summer of 2002 in Jackson Wyoming. I spent at anywhere from 9-12 hours driving each day for 5-7 days a week.

The ways in which older adults coordinate and arrange transportation for themselves is important for understanding how to plan for those individuals who are just giving up their car. The personal automobile opened up a world of possibility to people. It is a personal transportation device that takes very little energy to operate, and goes when and where you want on demand. Very little foresight and planning are required before undertaking a car journey; you get in the car, and go. Once a personal auto is no longer available, a series of steps and planning must now be undertaken before a journey can be made. If it is too far to walk, a mode of transportation will have to be chosen. This can mean friends, family, neighbours will drive them, they will have to catch a bus, they will have to book handyDART, they will have to book a taxi or volunteer driver, or they will have to rely on some other privately operated service.

The interviewees all felt that older adults generally arrange transportation for themselves. As older adults age, however, they increasingly rely on others to help them arrange and coordinate. One interviewee emphasized that older adults rely heavily on word of mouth when arranging transportation. They rely on word of mouth to: learn about available services; find out who could offer them a ride; learn how to use different services; and to gain confidence in available services. As this interviewee said, "I think word of mouth, 'well my neighbour will help me, my family will help me, my friend will help me, and my friend's friend will help me, cause they're not too busy, and they're going your way and I'll get them to come over and get you.' And this is big, because there seems to be some comfort around that." She went on to explain that "Their sense of community and people talking to people, is really, one of the biggest ways they're coordinating how to get around if they don't have a car." While everyone knows that

public transit buses exist, it was recognized by all the interviewees as a fallback option if nothing else was available.

Families play a significant role in helping coordinate and arrange transportation. One interviewee said that families were often the ones initiating the use of a new mode of transportation. This can take the form of registering 'mom' or 'dad' for handyDART, calling a taxi, setting up an account at a taxi company, and coordinating with other family members over picking up and dropping off their loved one.

Another significant way older adults can increase their mobility and the accessibility of goods and services is to move to places that are in dense neighbourhoods within walking distance of numerous places. One interviewee felt that a sizable number of older adults were recognizing the benefits of living within walking distance of stores and shops. Because of making such a choice, these older adults now are able to get out without needing to coordinate and arrange for transportation. By living in a community where it is simple to maintain mobility, older adults are proactively considering the need for transportation without a private automobile, and the effects of doing this are significant.

4.2.7. Reasons Behind (Im)mobility

All 6 interviewees were adamant in their belief that older adults travel less when they give up their automobiles. This is supported by the literature (Turcotte and Schellenberg 2007, Rosenbloom 2001, Gillan and Wachs 1976, Burkhardt et al 2002, Vasconcellos 2001, SEU 2003 and Hine and Grieco 2003). As older adults age, declining health, fewer activities to get out for, fewer friends, more planning is required, lack of

transportation options and less disposable income all contribute to less trip-making outside the home.

Declining health was mentioned by 4 of the interviewees as a major reason for declining trip making. As older adults age, their health declines and makes movement more difficult. This decline in energy that accompanies ill-health is of considerable concern. The personal automobile is a boon for people with low levels of energy. As previously mentioned, it takes very little energy to operate one. Taking the bus, or relying on other forms of transportation takes more energy. It takes energy to get to a bus stop, carry bags of shopping, stand and wait for a taxi, and do any number of activities associated with traveling. Turcotte and Schellenberg (2007) state that 37% of older adults report themselves as being in either good or excellent health. This compares to 63% of non-older adults who report the same.

That older adults have fewer activities to get out of their homes for, was reported by one interviewee. This interviewee, who manages VIHA Adult Day Programs, said, "But from what I've heard from what people tell me they get out less, because they have less to get out for. You know if you're not working, I know some person told me, 'the only time I feel like I get out of my house is to come to the centre or to go to another friend's funeral'. You haven't got friends to go and visit." They also make fewer commitments for volunteer work or meeting up with friends.

Once older adults give up their cars, they need to spend more time planning journeys. This was cited by five of the interviewees as a major reason for fewer trips made by older adults. When driving a personal automobile, often the only planning needed is to when you need to leave. Suddenly, when confronted with not having a

personal automobile, older adults must look at when they need to arrive, what modes of transportation are needed, what it is going to cost, how they will need to arrange for this transportation, and how they will return home. All these different arrangements take time and energy, and energy, as previously mentioned, is closely linked with health. As health declines, so does the energy required to plan journeys. This results in not only less journeys being taken, but also limited to higher priorities. The first types of journeys to not be made are often social trips. Social outings and interactions have also been positively correlated with health in the literature (SEU 2003). So as health declines and fewer journeys are made for social purposes, health may decline further, perpetuating the downward spiral of ill-health. As one interviewee said, "When they had their own car, it was less planning. It was less of a hassle. Sometimes it's just easier to stay at home."

Two interviewees felt that if older adults were better able to maintain their personal health, transportation issues would be fewer. Healthy people have an easier time using different modes of transportation. As one interviewee said, "You can't really change their health, but that would be the first thing they would be to have to be more mobile." Policies that promote healthy living will, by extension, promote self sufficiency and ease in traveling among older adults. Another interviewee thought that by keeping older adults in their own home as long as possible would enable them to better maintain their health. This view is supported by the literature. Not only does aging in place help maintain health and independence, it also is cost-efficient from a societal standpoint (Lawler 2001).

4.2.8. Changes in Mobility

As older adults age, changes occur in the type of transportation that is available and accessible to them. In their younger years, the automobile is often the only type of transportation used. As they age, car use is sometimes supplanted by taxis, friends, family, neighbours, walking and using the bus. In their older frailer years, after they no longer have access to a personal automobile, transportation that is comfortable, accessible, affordable and goes when and where they want is in short supply. The interviewees all believed that major changes take place in the way older adults get around after they no longer have an automobile. These changes include making fewer trips, combining trips, staying closer to home, making fewer commitments and doing things at different times.

That older adults make fewer trips is well known, and was discussed in the previous section. They make fewer trips because of the stress and energy required in making a trip. One way by which older adults reduce the number of trips they make is by combining trips. Whereas before they might have made a trip to the store just to buy milk, now they will not go unless they have a number of items they can pick up. Often making one stop is too little for one trip; they need other chores or places to visit before they will make the trip. This is called trip-chaining. Outside of the automobile and walking/biking, very few modes of transportation available to older adults lend themselves well to trip-chaining.

One interviewee mentioned that once older adults give up their vehicles, the amount of distance they are willing to travel decreases. As a result, they make trips of shorter distance to closer amenities. They are more likely to visit local stores than to try and get a ride to the mall or major big box stores. As she said, "They're making

connections closer to home, whether it's in their apartment block, in their centre or in their neighbourhood. Where before they may have shopped out at SuperStore, now they're just going down the road, because it's easier.”

4.2.9. Improvements to Transportation Services

A number of transportation improvements were mentioned by the interviewees that they believed would help make journeying without a personal vehicle easier. These improvements include: workshops on how to ride the bus; driver training; offering more amenities at bus stops; offering more specialized transportation for older adults; more affordable taxis; and more volunteer drivers. Because of the author's association with the local transit company, again, this may have influenced the interviewees to focus on bus transit over other modes.

Training older adults to use public transportation came up in three interviews. The interviewees felt that often, older adults need someone to help them navigate the different transportation modes the first few times. Two of the interviewees believed that older adults had an easier and less stressful time learning to use new transportation modes when they were supported either one-on-one with a trainer or in a group with other older adults. Personalized support offered to older adults was seen as comforting as well as less intimidating. Simple training sessions on how to read a schedule, where to catch a bus, and how to make transfers were also mentioned in addition to more in-depth travel training.

Driver training for drivers of all different modes was mentioned by two interviewees. They felt that drivers of taxis, buses, and handyDART often did not understand the special needs and wants of older adults. Training was thought to be a way

to help increase awareness of the special needs of older adults and to help drivers better serve this population. As one interviewee said, “If we’re talking about taxi, it’s ongoing training for drivers in how to work with their older adult customers, about their patience and respect. We know they’re on a timeline to make money. The drivers of buses have a great reputation as being friendly. Clearly describing what route, clearly describing what the stops coming up and just having the patience, so that’s from a bus driver perspective.”

It was recognized by all the interviewees that older adults most appreciate door to door service and personalized attention. However, these types of services are also the most expensive to provide. A major improvement to transportation services for older adults would be to make taxis as affordable as the bus. An increase in volunteer drivers was also seen as a way to meet older adults’ transportation needs. Volunteer drivers provide their own vehicles and time to agencies that then match up trip requests to drivers. Most volunteer driving agencies in Victoria provide medical needs trips only, due to capacity constraints. These volunteer drivers provide door to door or door through door travel, as well as wait for the client while they are at their destination. This type of personalized service is not only greatly appreciated by older adults; it is also well used.

Specific location improvements were suggested. The interviewee in Sidney works for a large centre in that community that serves older adults from North Saanich and Central Saanich as well. She thought that bus services to North Saanich were especially sparse and Central Saanich was marginally better. There were also problems of connectivity between Sidney and North and Central Saanich. Because Sidney is the hub of peninsula commercial activity, many medical offices and services are located in this community. Central Saanich is the location for the peninsula hospital and North Saanich

is the location for the recreation centre. As a result, many trips are made between the three communities by older adults residing in them. Bus service between those communities was seen as lacking.

The interviewee from Langford felt that services within the community were lacking. Most transportation was focused on the commuter market. Her suggestion was for more neighbourhood circulator bus routes that would focus on shopping trips and taking people to different appointment locations.

4.2.10. Issues Associated with Not Driving

When asked about the quality of life issues associated with non-drivers, a variety of answers were given. The interviewees felt that some of the more important issues were: greater dependency; detrimental to health; diminished quality of life; fewer choices; and families getting burnt out. All felt that the quality of life was diminished in some way, however, one interviewee mentioned that some older adults were very resourceful and able to adapt to not having an automobile.

When older adults are no longer able to drive themselves, three interviewees felt that the largest issue confronting them was dependency. It's the dependency on others for getting to appointments, getting food, going out, and doing any number of activities they were able to do by themselves while still driving. As one interviewee said, "Their own sense of diminished capacity and whether or not they are, it's their freedoms; they have a decreased independence, and an increased perception of being dependent on others." Another interviewee emphasized, "I would think it changes your quality of life in big ways, not being able to drive [It's no longer easy to do many things]. And it's a dependency, a *dependency*. That's got to be the key word."

Two interviewees felt that diminished health was a major quality of life issue upon the cessation of driving. The health issues mentioned by the interviewees were: depression; reduced self-esteem; and isolation. When confronted with transportation that requires more planning and time, older adults trip-chain and reduce the number of trips they make. Some of the interviewees felt that older adults who do not drive were putting off or eliminating medical trips. As one interviewee said, "I think that people are putting off doing things if it takes them a long time to get where they're going. They'll try and bunch it all together and maybe not do it as often. So if they're supposed to go for a check-up, maybe they'll skip a couple. So there may be less focus on their health care."

In losing their personal vehicles, older adults inevitably feel like they had a diminished quality of life. This change, according to two interviewees, was often immediately apparent. According to one interviewee, "They feel their quality of life has gone down. Some of them get very upset. The ones that seem to do better are the ones that are willing to give up their license before they have to." The literature supports this proposition; the earlier older adults prepare for life without an automobile, the easier the transition is for them when they give up driving (Rosenbloom 2001). That their quality of life decreases is related to the fact that they make fewer trips: fewer trips to visit friends, to the doctor, to concerts, to any number of social, recreation and shopping opportunities.

4.2.11. Future Transportation Needs

At the conclusion of the interviews, the participants were all asked what they predicted the future transportation needs of older adults in Victoria would be. A number of different answers were given, including: *more transportation of all kinds*, easier

transportation, and better urban planning. Very few specific ideas were given, but all interviewees seemed to believe the existing problems were only going to get worse.

Dependency was once again a major theme among the interviewees. They felt that as older adults give up their licenses, there was going to be increased dependency on those who do drive to provide transportation. This dependency, would extend to publicly available forms of transportation as well. Paratransit, conventional buses, taxis, and volunteer drivers are all going to be in increasing demand.

One interviewee thought that forms of transportation would have to change and adapt better to older adults as well. She cited an example of a program in another city called 'Driving Miss Daisy', which is a privately run company that provides personalized transportation to clients. It was a door to door service with the driver also helping carry bags and allowing clients to more easily trip chain. Other interviewees seemed to agree that personalized transit was going to have to expand to meet future demand.

Urban form and planning seemed to be in the forefront of a few interviewees' minds. Small urban features such as curb cuts and longer crossing signals were mentioned. Making sure amenities were within walkable distance was also considered important. One interviewee mentioned the need for new infrastructure that was built for electric scooters. The interviewees realized that transportation, however important, often plays an auxiliary role in mobility and accessibility of cities for older adults.

The interviews ended with an open ended question that asked for the participants input on anything they thought they had missed. Three interviewees took the time to mention how bus service needed to be improved with more older adult oriented services,

more stops, variable routing, cheaper passes, smaller accessible buses and more direct routes.

4.2.12. Summary

The first set of interviews laid out the transportation needs specific to Victoria. A general understanding of older adult transportation wants and needs was gained from the literature review. The interviewees confirmed the literature review: older adults prefer door to door transportation, higher quality services, personalized attention, assistance with loads, and spontaneity. They did not like: hurried drivers, transferring, waiting, high costs, and the dependency on others.

4.3. Key Informant Interviews: Set Two

The results of the literature review, first set of interviews and the survey were used to create recommendations for coordinating transportation services. These recommendations were then discussed with two transportation planners and one manager of a transportation provider in a second set of interviews. Their input was sought to provide further refinement of the recommendations as well as to discuss feasibility and structure of a coordinated transportation system for Victoria.

4.3.1. Feedback on Role of the Planner

Two transportation planners and one transportation company manager were interviewed to provide feedback on the proposed role of the planner. Their comments revolved around a few themes: the planner as the facilitator; the planner finds and promotes options and incentives; and the planner as the monitor of the coordinated transportation system.

The planner as the facilitator was mentioned by all three interviewees as being one of the most important roles. Facilitating coordinated transportation systems means identifying local resources, bringing them together, and overcoming obstacles to coordination. They felt that the planner needed to look for local existing resources to minimize costs. Existing transportation resources that can easily be integrated with other transportation resources would minimize start-up costs and ongoing operating costs. Many organizations already own vehicles, and often the only overhead is insurance, maintenance and fuel. Because the drivers are employees or volunteers, the cost of operating the vehicle is fixed. One planner thought this creates a disincentive to coordination. They like to have their vehicle when they need it, to go where they want it. Because it is not costing extra, there appears to be no large incentive to coordination.

The planner needs to find and promote options and incentives to encourage providers to participate in coordination. Options and incentives also need to be found to entice older drivers out of their automobiles. One way find new options and incentives is to always be open to new ideas. One planner cited an example of a seniors' bus in North Vancouver that was created by a number of seniors' organizations and the local health authority. They found that many older adults did not identify themselves as disabled and therefore did not wish to ride para-transit. They also felt that riding the conventional bus was stressful, so they came up with their own transit 'system'. One bus was acquired and schedules were set by the organizations involved. Fares were by donation and the system became quite successful. Rather than go after them, the local transit authority set up a study around this system to see how it could be replicated in other communities. As the interviewee said, "Looking for ideas and [being] open to trying different things [is

important]. You might fail a few times. If it doesn't work out, at least you gave it a shot.” This is a textbook example of using the successive limited comparison model to address the wicked policy issue of older adult transportation. By trying simple systems to address a few needs, a transportation option was created that catered to a specific market. This small system could be studied to see how it met needs. Refinements could be undertaken and improvements made to address further needs and expand service (Lindblom 1959).

4.3.2. Feedback on Coordinated Transportation

All interviewees agreed with the need for more coordinated transportation. As one planner said, “My philosophy for planning for seniors transportation, is providing as many options as you can. Since there's no one best possible solution, many types of options [are needed]. The needs and circumstances are so varied, that it's impossible to fit them into one box. You need to provide them a whole family of services beyond transit and para-transit.” To provide multiple options, as many local resources as possible should be encouraged to coordinate. This is a wicked problem. No single solution can be expected to meet every transportation need. New solutions will help further define the wicked problem as well as provide better or worse results. Ideas need to be continually evolving and different individuals will identify different solutions. By coordinating not only transportation providers, but also different solutions, transportation needs have a better chance of being met (Rittel and Webber 1973).

Coordinated transportation, both of the planners felt, should not be run by a government entity. One planner stated, “So if you can find a way so that transit can administer a non-profit run system, once it becomes our [government] system, costs go through the roof, come up with a system, for various regions, you could run this whole

thing for minimal cost. It's not run as a transit system or a handyDART. It's a lot less formal, and it does exactly what people want."

One option proposed by the planners was for the government to fund a coordination administrative centre for communities. Any more than this and both planners felt that local initiative and flexibility would drop, volunteer resources would be less, and costs would increase, negating any savings from coordination. When presented with results that showed coordination more common in the USA than in Canada, one planner felt there were a few reasons for this. He said, "My own sense, as to why coordination has happened in the states, but not here, is they have so many different funding sources for transportation; through state agencies, federal agencies, Office on Aging, ADA (Americans with Disabilities Act), literally dozens. It's almost a full time job for people to go out and get these funding sources. Whereas in Canada, especially BC, it is like one stop shopping. We have public transit, which more or less, does everything." While funding from the government is important, control should not lie there.

4.3.3. Summary

All three interviewees felt that the largest obstacle to coordinated transportation was overcoming turf issues with the different transportation providers. Government regulations were not seen as standing in the way of coordination. Turf issues between companies, prevent coordination as they are often pursuing the same volunteers, customers, donations and support. While turf issues are greater between for-profit companies in pursuit of profits, non-profits often face the same competition problems as funding for their programs can be scarce. To get around turf issues, especially with non-

profits, the planner needs to make the business case for coordination. Coordination itself is a worthy pursuit, and would be most appropriate in smaller communities, where there are fewer options and trips costs and distances are higher.

It became clear that, although neither of the transportation planners interviewed used the term ‘wicked problems’, they addressed the issues and offered solutions in a way that they understood that there was no one right answer to coordinated transportation for older adults. They knew that needs and wants were hard to define, difficult to monitor, and never static. Solutions that had been tried could then be used to help further define the problems. Incremental steps and the further refinement of transportation systems enable planners to continually address needs and provide better service. They understood that problems were inherently different for different locations and individuals. Trying various options would mean that individuals stood a better chance of meeting their transportation wants and needs.

CHAPTER 5: Conclusions, Recommendations and Further Study

This chapter provides the conclusions for this study. It summarizes and synthesizes the data analysis and literature review to develop responses to the research questions. The conclusions are followed by recommendations for planners. The final section discusses new questions raised by this study and offers possibilities for future studies.

5.1. Conclusions

The practicum analyses non-driving older adult transportation needs and options, with particular reference to coordination and collaborative planning and their possibilities in Victoria. The following is a summary of the findings in relation to the research questions set out in Chapter 1.

1. What are the transportation needs of non-driving older adults in Victoria?

Analysis of the literature review and first set of interviews show that significant gaps exist in the transportation infrastructure for non-driving older adults. Because of the complexity required to make non-automobile trips, there is reluctance to take trips and try different modes of transportation. This reluctance and resistance means that certain transportation providers are over-utilized, others are under-utilized and many are not seen as viable forms of transport. The needs vary among the population based on age, income, sex, disability, and living arrangements. While generalizations were drawn, need is highly individual and transportation providers need to embrace that.

The automobile-centricity of Victoria is endemic to North America. Land use and development in Victoria mean that few transportation options exist for many individuals outside of the denser areas. What can be learned from the literature review and interviews is that to enable easier travel for older adults a first step would be to coordinate transportation service providers and target the various needs with many options. This has been shown to work in other jurisdictions where coordinated transportation networks enable more trips, higher frequencies, more coverage and more trip purposes to be served with equivalent or fewer resources.

The needs of older adults in Victoria correlate with the literature. They need, first and foremost, trips for medical purposes followed by trips for social purposes. Other needs mentioned by the interviewees were shopping, leisure activities and recreational activities. These transportation needs are often met with the personal automobile. When the automobile is no longer an option, services exist to help fill those needs, but the services are not as seamless to operating a personal vehicle. As a result, this gap between what the personal auto offers and what publicly available transportation options offer is stark. By combining the best of what every system has to offer, a picture of the ideal transportation network can be seen. Older adults want the convenience of a taxi, with the helpfulness of a volunteer driver, for the cost of a bus fare or less.

2. What transportation options currently exist for older adults?

The survey of organizations that provide transportation revealed that, while numerous options exist, not all are available to all older adults. The vehicles, employees, service hours, and service areas all differ between organizations. It was found that they

rarely work with one another, except for private entities often calling on public transportation (handyDART, taxis, and buses) for their clients. There are four different types of established transportation providers: publicly owned and operated (the bus and handyDART); privately owned and available to anyone (taxi companies); privately owned and available to certain customers/clientele only; and volunteer agencies.

3. What are the opportunities for the development of a coordinated transportation systems in Victoria?

The literature review, case studies, interviews and surveys showed that unmet transportation needs exist and transportation providers do not coordinate services. As the past precedent section showed, the benefits to coordination accrue to the providers and the users. Victoria has the resources and older adult population necessary to ensure the success of a well planned and run coordinated transportation system.

Traditionally, transportation is thought of as the personal automobile, while other modes of transportation are underutilized. Behaviours that exist during individuals' younger years tend to exist into their older years. If Victoria is to offer a successful multi-modal coordinated transportation system to older adults, educational campaigns and a 'starter' system will need to be implemented. A small system can be implemented with a few players, and as users and other transportation providers see the benefits, the system will grow. As the knowledge of coordinated transportation and its benefits increases among older adults, politicians, transportation providers and transportation professionals, an increase in funding and legislation allowing for such systems will increase.

The research has shown the reasons why coordinated transportation has not been implemented in Victoria. Political will is lacking, and the benefits are not seen by the transportation providers. It is often easier just to keep doing whatever one is already doing. Transportation decisions are often made in a vacuum, only considering the automobile users, or only considering the needs of the residents at a particular seniors' home for example. Victoria has the transportation resources necessary to begin coordinated services. Transportation planners and politicians can become the catalysts for this change. This research should be shared with politicians, transportation providers and transportation professionals to encourage the planning of coordinated transportation services.

5.2. Recommendations

This section demonstrates how a coordinated, responsive, affordable, accessible transportation system for Victoria can be created in part by the planner. The planner has multiple roles in a coordinated transportation systems are implemented and monitored, including matchmaker, facilitator, mediator, negotiator, monitor, and leader.

5.2.1. Identifying needs and transportation providers

The first step to creating an appropriate and acceptable transportation network is to delve into what the needs and wants of the targeted user communities are. This is a murky area, as wants and needs are constantly changing and evolving. Planners will need to not only identify localized wants and needs, they will also need to set up a monitoring system that will enable them to see when those needs and wants are changing. In addition to localized, a macro approach to wants and needs is also warranted.

An acknowledged shortcoming of this practicum was not talking to older adults themselves to hear their views on their needs and wants. This would be a necessary part of any research, and it would have to be ongoing to fully account for the changes and evolution of their needs. This could be done through intermediaries, such as staff at older adult homes and centres, from drivers canvassing their passengers, or from individuals who work with them. Or, it could be done through personal interviews, ongoing focus groups, weekly luncheon dates, or at any number of places where older adults visit or congregate. The underlying factor is the need to understand as fully as possible, what the wants and needs are of the user group in any given time period.

The second step will be canvassing transportation providers to see what they have in terms of staff and vehicles, what they are willing to share, what their governing structure is, what their funding and costs are, and what their interest in working with other transportation organizations may be. The importance of this step lies in working with these different groups to bridge gaps between them, provide incentives to working with each other, and to address the needs of their clientele.

As it currently stands, the provision of transportation is often neither directed at older adults nor is it 100% appropriate for them. Taxis provide good service, but they are often too expensive. Bus service is fairly comprehensive, but it is geared more towards commuters and students. HandyDART is door to door and affordable, but lacks the ability to support spontaneous trips. Older adult home owned vehicles are only for their residents and often have to be booked ahead of time. No affordable, spontaneous, door to door transportation option exists for older adults. There are enough vehicles in Victoria, run by senior's homes, government agencies, volunteer groups, churches, stores, casinos,

and centres to provide transportation for all of the non-driving older adults in the city. The reason capacity has been reached in many organizations is that they do not have adequate funding. By not coordinating with each other, they make it more difficult to achieve lower marginal costs. Overlapping services, underutilized vehicles, and unnecessary trips all contribute to a massive misallocation of scarce resources. A coordinated approach to providing transportation to older adults could help remedy many of the short-comings in the current system. By integrating as many of the transportation services in Victoria under one funding and coordinating body, the number of transportation options for any given individual increases.

A coordinated approach requires trying to broadly address as many problems experienced by the users as well as the providers as possible. From the interviews done for this practicum, it became clear that the following problems are associated with transportation by older adults:

- Too expensive;
- Too hurried;
- Does not go when/where they want it to;
- Drivers are not 'trained' to deal with older adults-specific issues.

These are issues that can be partially addressed by seamlessly integrating transportation providers that currently serve older adults. Economies of scale can be achieved in administration, reducing costs; vehicles can be routed more efficiently, and vehicles can carry more people per trip.

Through collaborative planning methods, transportation providers, older adults, politicians and other relevant stakeholders can be brought together to work issues out and constantly monitor and strategize the coordination of services. The basis of trust that is the foundation of any successful collaborative planning effort will enable all stakeholders

to achieve desired outcomes. By coordinating transportation providers, older adults will then have an option to pick the type of transportation most suited to the journey they are making. If they are going shopping, they may wish to have a driver help carry their bags into their home; if they are going to a movie, they may wish to have fast direct service. There are many different instances in which a certain form of transportation is more appropriate than others. A central dispatch and coordination centre will need to be set up. Such a centre will handle calls, dispatch, funding, administration and financial aspects of the coordinated transportation system.

5.2.2. Coordinating Transportation

One of the bigger hats a planner must wear is that of service facilitator. This is not to say that the planners' role is to constantly work on the coordinated aspects of any given system, but rather to bring organizations to the table, mediate between their needs and wants, work with different levels of government on securing funding and appropriate legislation, and to ensure buy-in through promotion of potential benefits. These benefits could include: lower operating costs, lower per trip costs, more trips provided, more options for all users, more incentive to reduce personal vehicle use by users, more affordable transportation, more accessible transportation, and more mobility and accessibility.

The planner's role is to establish a working relationship between organizations and users and to enable them to continue to work together. Experience in other coordinated transportation systems has shown that government support, a central booking and dispatch office, and local support are essential to their success. The planner plays a large role in making such inputs happen.

In helping coordinated transportation networks come about, the planner needs to be cognizant of the dichotomy between what is and what should be. Individual organizations making decisions on their own to further their own programs are not an ideal state of being for a coordinated system. For a coordinated system to happen, a number of wicked problems will need to be addressed. As pointed out in the literature review, wicked problems are ones that do not have perfect solutions; they merely have better or worse solutions. A few wicked problems are identified below that need to be addressed in coordinated system:

1. The wants and needs of all the older adults are diverse and changing.
2. In a capitalist society, organizations compete with one another for customers and funding. Coordination between organizations does not come about naturally.
3. A reduction in single occupancy vehicle use is needed to help ensure long term transportation sustainability.
4. Funding is an issue, especially for non-profit agencies. There are numerous reasons to travel, but with limited resources, priority must be given to certain individuals and trip purposes.

When addressing such wicked problems, the planner will have to work collaboratively with organizations and users to constantly monitor and adjust, if needed, the solutions offered. The biggest problem facing coordinated transportation systems is the need to sustain participation of organizations and to continually adjust service so that the needs of users are met to the greatest degree possible. As trust builds between stakeholders, reciprocity and coordination between organizations becomes more ingrained in the transportation system and a collaborative efforts are rewarded with benefits accruing to all involved.

5.3. Vision of a Coordinated Transportation System

A vision of a coordinated transportation system for older adults is one in which all travel needs are met in a cost efficient manner. To arrive at this, a centre for coordinated transportation is set up, transportation providers are brought together, funding and turf issues are addressed, and a collaborative planning process with stakeholder input is implemented. Financial resources are allocated to create a coordinated transportation system using sustainable transportation indicators to ensure continued use by all residents.

5.4. Directions for Further Study

While some questions were answered during the course of this practicum, many new questions were raised. Further study of the above recommendations could lend them additional credence and provide further pressure for governments and planners to consider coordinated transportation systems. A number of possible courses of further study were identified and are described below.

The first course of study is to more fully examine older adults and how they organize and arrange for transportation. Looking at the ways they communicate with service providers, how they decide on which mode to use and how they use those different modes could provide greater insight into designing a comprehensive coordinated transportation system.

The second course of study is to more fully research the complex interactions of all the different players affecting older adults' transportation in a given city. For Victoria, this entails researching the development industry, the transportation industry, more fully

understanding how older adults make decisions based on mobility and accessibility, identifying nodes of activity, determining better locations for services, looking at regulations from the government and within organizations, and identifying connections between all the different players in city development and governance. An important part of this research would be looking at how friends, family and neighbours fit into the transportation network.

The third course of further study would be looking into how transportation providers can seamlessly integrate their different systems. This would include discussing dispatch and scheduling systems, funding and fares, and the creation of a central information distribution and booking office. These are some of the more mundane but essential aspects of coordinated transportation systems. It is also the most difficult part of coordinating transportation.

A fourth and final course of study is to look into how older adults live. This would require in-depth study on the development industry, planning practice and how choices are made. One of the most successful ways to enable older adults to live satisfying lives after giving up driving is to enable them to maintain their quality of life. Transportation providers will only ever be part of the solution. Finding ways to live so that automobiles are not needed would go further than transportation providers could.

Bibliography and Other Relevant Readings

- Alsnih, R. and D. A. Hensher (2003). "The mobility and accessibility expectations of older adults in an aging population." Transportation Research Part A 37: 903-916.
- Arcury, T. A., J. S. Preisser, et al. (2005). "Access to Transportation and Health Care Utilization in a Rural Region." The Journal of Rural Health 21(1): 31-38.
- Ball, M. M., F. J. Whittington, et al. (2000). "Quality of Life in Assisted Living Facilities: Viewpoints of Residents." Journal of Applied Gerontology 19(3): 304-325.
- Banister, D. and A. Bowling (2004). "Quality of life for the elderly: the transport dimension." Transport Policy 11(2): 105-115.
- Boarnet, M. and S. Sarmiento (1998). "Can Land-use Policy Really Affect Travel Behaviour? A Study of the Link between Non-work Travel and Land-use Characteristics." Urban Studies 35: 1155-1169.
- Booher, D. E. and J. E. Innes (2002). "Network Power in Collaborative Planning." Journal of Planning Education and Research 21(3): 221-236.
- Boschmann, E. E. and M.-P. Kwan (2008). "Toward Socially Sustainable Urban Transportation: Progress and Potentials." International Journal of Sustainable Transportation 2(3): 138 - 157.
- Brundtland Commission (1987). *Our Common Future*, Oxford University Press.
- Buliung, R. N. and P. S. Kanaroglou (2006). "A GIS toolkit for exploring geographies of household activity/travel behavior." Journal of Transport Geography 14(1): 35-51.
- Burkhardt, J.E., A. M. Berger, M. Creedon, and A. T. McGavock. (1998). Mobility and Independence: Changes and Challenges for Older Drivers. Ecosometrics Inc., Bethesda, Maryland.
- Burkhardt, J.E. (1999). "Mobility Changes: Their Nature, Effects, and Meaning for Elders Who Reduce or Cease Driving." Transportation Research Record: Journal of the Transportation Research Board 1671(1): 11-18.
- Burkhardt, J.E., et al. (2002). "Toolkit for rural community coordinated transportation services: Interim report." Prepared for the Transit Cooperative Research Program. Washington, DC: Transportation Research Board, National Research Council.

- Burkhardt, J.E., et al. (2003). "Economic Benefits of Coordinating Human Service Transportation and Transit Services." Washington, DC: Transportation Research Board.
- Burkhardt, J.E., et al. (2004). "Toolkit for Rural Community Coordinated Transportation Services." Washington DC: Transportation Research Board.
- Burkhardt, J.E. (2004). "Successful Coordinated Transportation Services in Rural Communities." Rockville, MD: WESTAT.
- Burkhardt, J. E. and H. Kerschner (2005). "How to Establish and Maintain Door-Through-Door Transportation Services for Seniors." D. o. H. a. H. Services, US Government.
- Canadian Urban Transit Association (CUTA). (2007). Specialized Transit Services Fact Book - 2006 Operating Data. Toronto, ON: CUTA.
- Carnegie, J., P. Woods, et al. (2005). Safe Mobility at Any Age. Policy Forum Series. New Brunswick, NJ, Rutgers, The State University of New Jersey.
- Carruthers, R., M. Dick, and A. Saurkar. (2005). The World Bank Group. Affordability of Public Transport in Developing Countries. Washington D.C.: The World Bank.
- Centre for Sustainable Transportation (CSTCTD), The. (2002). "Definition and Vision of Sustainable Transportation." Mississauga, ON: CSTCTD.
- Centre for Sustainable Transportation (CSTCTD), The. (2005). "Defining Sustainable Transportation." Winnipeg, MB: CSTCTD.
- Chapin, R. and D. Dobbs-Kepper (2001). "Aging in Place in Assisted Living: Philosophy Versus Policy." Gerontologist 41(1): 43-50.
- Deakin, E. (2001). "Sustainable Development and Sustainable Transportation: Strategies for Economic Prosperity, Environmental Quality, and Equity." Working Paper 2001-03. University of California at Berkeley, Institute of Urban and Regional Development.
- Dobbs, Lynn. (2005). "Wedded to the car: women, employment and the importance of private transport." Transport Policy 12: 266-278.
- Dominic, S. (2003). "Transport and land-use planning policy: really joined up?" International Social Science Journal 55(176): 333-347.
- Farrington, John, and Conor Farrington. (2005). "Rural accessibility, social inclusion and social justice: towards conceptualisation." Journal of Transport Geography 13: 1-12.

- Forester, J. (1980). "Critical Theory and Planning Practice." APA Journal: 275-286.
- Forester, J. (1982) "Know Your Organizations: Planning and the reproduction of social and political relations." Plan Canada 22(1): 3-13.
- Freund, K. (2003). "Independent Transportation Network: The Next Best Thing to Driving." Generations 27(2): 70-71.
- Gillan, J. and M. Wachs (1976). "Lifestyles and transportation needs of the elderly in Los Angeles." Transportation 5(1): 45-61.
- Glasgow, N. and R. M. Blakely (2000). "Older Nonmetropolitan Residents' Evaluations of Their Transportation Arrangements." Journal of Applied Gerontology 19(1): 95-116.
- Glückler, J. (2007). "Economic geography and the evolution of networks." Journal of Economic Geography: 1-16.
- Greene, D. L. and M. Wegener (1997). "Sustainable transport." Journal of Transport Geography 5(3): 177-190.
- Hamilton, Kerry, and Linda Jenkins. (2000). "A Gender Audit for Public Transport: A New Policy Tool in the Tackling of Social Exclusion." Urban Studies 37: 1793-1800.
- Healey, P. (1997). Collaborative Planning: Shaping Places in Fragmented Societies. London UK: MacMillan Press Ltd.
- Healey, P. (1998). "Building institutional capacity through collaborative approaches to urban planning." Environment and Planning A 30: 1531-1546.
- Helbing, D., J. Keltsch, et al. (1997). "Modeling the evolution of human trail systems." Nature 388(6637): 47-50.
- Henson, R. and S. Essex (2003). "The development, design and evaluation of sustainable local transport networks." International Social Science Journal 55(176): 219-233.
- Hildebrand, E.D.. (1998). "An Activity Based Travel Needs Model for the Elderly". PhD dissertation submitted to the University of Waterloo: Waterloo Ontario.
- Hildebrand, E.D.. (2003). "Dimensions in elderly travel behaviour: A simplified activity-based model using lifestyle clusters." Transportation V30(3): 285-306.

- Hine, Julian, and Margaret Grieco. (2003). "Scatters and clusters in time and space: implications for delivering integrated and inclusive transport." Transport Policy 10: 299-306.
- Hodgson, F C., and J Turner. (2003). "Participation not consumption: the need for new participatory practices to address transport and social exclusion." Transport Policy 10: 265-272.
- Hu, Patricia S., and Timothy R. Reuscher. U.S. Department of Transportation. Summary of Travel Trends: 2001 National Household Travel Survey. Washington D.C.: USDOT, 2004.
- Iles, Richard. (2005). Public Transport in Developing Countries. Oxford: Elsevier Science.
- Imamoglu, C. (2007). "Assisted Living as a New Place Schema: A Comparison With Homes and Nursing Homes." Environment and Behavior 39(2): 246-268.
- Jacqueline, G. and W. Martin (1976). "Lifestyles and transportation needs of the elderly in Los Angeles." Transportation V5(1): 45-61.
- Johnson, S. Emergence. New York, Scribner, 2001.
- Joseph, S. S. (2003). "Decision-making, intermodal transportation, and sustainable mobility: towards a new paradigm." International Social Science Journal 55(176): 185-197.
- Juan Antonio, C. and J. M. Eric (2006). "Exploring the propensity to perform social activities: a social network approach." Transportation V33(5): 463-480.
- Khisty, C. J. (1995). "Soft-systems methodology as learning and management tool." Journal of Urban Planning & Development 121(3): 91.
- Kiernan, M. (1982). "Ideology and the Precarious Future of the Canadian Planning Profession." Plan Canada 22(1): 14-24.
- Kostyniuk, L. P. and J. T. Shope (1999). Choice of Transportation Mode Among Older Drivers and Former Drivers. Ann Arbor MI, University of Michigan Transportation Research Institute.
- Kranton, Rachel E. The World Bank Group. "Transport and the Mobility Needs of the Urban Poor: An Exploratory Study." Washington D.C.: The World Bank, 1991.
- Lawler, K. Aging in Place Coordinating Housing and Health Care Provision for America's Growing Elderly Population. Joint Center for Housing Studies of

Harvard University and Neighborhood Reinvestment Corporation. Cambridge, MA: Harvard University, 2001.

- Levine, J. and Y. Garb (2002). "Congestion pricing's conditional promise: promotion of accessibility or mobility?" Transport Policy 9(3): 179-188.
- Liddle, J., K. McKenna, et al. (2004). *Older Road Users: From Driving Cessation to Safe Transportation*. Australia Transport Safety Bureau. Canberra, Australian Government.
- Link, Greg. (2004). *Developing Coordinated Transportation Systems for Older Persons: The leadership Role of State Units on Aging*. National Association of State Units on Aging. Washington, D.C..
- Litman, Todd. (2003a). "Social Inclusion As A Transport Planning Issue in Canada." Victoria Transport Policy Institute.
- Litman, Todd. (2003b). "Reinventing Transportation: Exploring the Paradigm Shift Needed to Reconcile Transportation and Sustainability Objectives." Victoria Transport Policy Institute.
- Litman, Todd. (2008a). "You Can Get There From Here: Evaluating Transportation System Diversity." Victoria Transport Policy Institute.
- Litman, Todd. (2008b). "Transportation Affordability: Evaluation and Improvement Strategies." Victoria Transport Policy Institute.
- Lyons, Glenn. (2003) "The introduction of social exclusion into the field of travel behaviour." Transport Policy 10: 339-342.
- McDonagh, J. (2006). "Transport policy instruments and transport-related social exclusion in rural Republic of Ireland." Journal of Transport Geography 14(5): 355-366.
- Metz, D. H. (2000). "Mobility of older people and their quality of life." Transport Policy 7: 149-152.
- Metz, D. (2003). "Transport policy for an ageing population." Transport Reviews 23(4): 375-386.
- Murtagh, K. N. and H. B. Hubert (2004). "Gender Differences in Physical Disability Among an Elderly Cohort." American Journal of Public Health 94(8): 1406-1411.
- Newbold, K. B., D. M. Scott, et al. (2005). "Travel behavior within Canada's older population: a cohort analysis." Journal of Transport Geography 13(4): 340-351.

- Noble, B. and Mitchell, C., (2001). "Some aspects of travel by older people". In Proceedings of the 9th International Conference on Mobility and Transport for Elderly and Disabled People, Warsaw, Vol. 1, pp. 53–61.
- Olvera, Lourdes D., Didier Plat, and Pascal Pochet. (2003). "Transportation conditions and access to services in a context of urban sprawl and deregulation. The case of Dar es Salaam." Transport Policy 10: 287-298.
- Oxley, J. and M. Whelan (2008). "It Cannot Be All about Safety: The Benefits of Prolonged Mobility." Traffic Injury Prevention 9(4): 367 - 378.
- Paez, A., D. Scott, et al. (2007). "Elderly Mobility: Demographic and Spatial Analysis of Trip Making in the Hamilton CMA, Canada." Urban Studies 44(1): 123-146.
- Peters, Deike. (1998). "Breadwinners, Homemakers and Beasts of Burden: A Gender Perspective on Transport and Mobility." Habitat Debate 4(2).
- Polzin, Steven E., and Xuehao Chu. U.S. Department of Transportation. Public Transit in America: Results from the 2001 National Household Travel Survey. Washington D.C.: USDOT, 2005.
- Rittel, H. W. J. and M. M. Webber (1973). "Dilemmas in a general theory of planning." Policy Sciences 4(2): 155-169.
- Rosenberg, M. and J. Everitt (2001). "Planning for aging populations: inside or outside the walls." Progress in Planning 56(3): 119-168.
- Rosenbloom, S., (1998). "Chairperson's report". In Transport and the Ageing of the Population: Report of the 112th Round Table on Transport Economics (Paris: European Conference of Ministers of Transport).
- Rosenbloom, S. (2001). "Sustainability and automobility among the elderly: An international assessment." Transportation V28(4): 375-408.
- Ryley, T. (2006). "Use of non-motorised modes and life stage in Edinburgh." Journal of Transport Geography 14(5): 367-375.
- Sampson, R. (2007) "Coordination in Action: Sussex County, Delaware." Community Transportation Fall 2007: 14-17.
- Scheiner, J. (2006). "Housing mobility and travel behaviour: A process-oriented approach to spatial mobility: Evidence from a new research field in Germany." Journal of Transport Geography 14(4): 287-298.
- Schelling, T. C. (1978). *Micromotives and Macrobehavior*. Toronto, George J. McLeod Limited.

- Schlossberg, M. (2004). "Coordination as a Strategy for Serving the Transportation Disadvantaged: A Comparative Framework of Local and State Roles." Public Works Management Policy 9(2): 132-144.
- Scott, D. M. (2006). "Embracing activity analysis in transport geography: Merits, challenges and research frontiers." Journal of Transport Geography 14(5): 389-392.
- Smith, G. C. and G. M. Sylvestre (2001). Determinants of the travel behavior of the suburban elderly. Growth and Change. 32: 395-412.
- Social Exclusion Unit (SEU). Making the Connections: Final Report on Transport and Social Exclusion. London UK: Department of the Environment, Transport and the Regions, 2003.
- Sokol, David. (2008) "Learning from Lerner." Metropolitismag.com. May 29th. Accessed on June 21st, 2008: <http://www.metropolitismag.com/cda/story.php?artid=3390>
- Sperling, Daniel, and Eileen Claussen. (2004). "Motorizing the Developing World." Access 24:2: 10-15.
- Steg, L. and R. Gifford (2005). "Sustainable transportation and quality of life." Journal of Transport Geography 13(1): 59-69.
- Sterns, H. L., J. E. Burkhardt, et al. (2003). "Moving Along the Mobility Continuum: Past, Present, and Future." Generations 27(2): 8-13.
- Sultana, S. (2005). "Social Change and Sustainable Transport." Annals of the Association of American Geographers 95(2): 487-489.
- Surowiecki, James. (2004). The Wisdom of Crowds. New York City: Anchor Books.
- Taaffe, E. J., R. L. Morrill, et al. (1963). "Transport Expansion in Underdeveloped Countries: A Comparative Analysis." Geographical Review 53(4): 503-529.
- Tacken, M. (1998). "Mobility of the elderly in time and space in the Netherlands: An analysis of the Dutch National Travel Survey." Transportation 25(4): 379-393.
- Taylor, B. D. and S. Tripodes (2001). "The effects of driving cessation on the elderly with dementia and their caregivers." Accident Analysis & Prevention 33(4): 519-528.
- Tsekeris, T. and A. Stathopoulos (2006). "Gravity models for dynamic transport planning: Development and implementation in urban networks." Journal of Transport Geography 14(2): 152-160.

- Tuokko, H., P. McGee, et al. (2007). "The Older and Wiser Rider: An Examination of Transportation for Older Drivers." Victoria BC, University of Victoria.
- Turner, Jeff and Edward Kwakye. (1996). "Transport and survival strategies in a developing economy: case evidence from Accra, Ghana." Journal of Transport Geography 4(3): 161-168.
- Turcotte, M. and G. Schellenberg. (2007). "A Portrait of Older adults in Canada." Ottawa ON: Statistics Canada.
- Vasconcellos, Eduardo A. (2001). Urban Transport, Environment and Equity: The Case for Developing Countries. London: Earthscan Publications Ltd.
- Walker, J. L. (2006). "Opening up the black box: Enriching behavioral models of spatial and travel choices." Journal of Transport Geography 14(5): 396-398.
- Walter, A. I. and Scholz. R. W. (2007). "Critical success conditions of collaborative methods: a comparative evaluation of transport planning projects." Transportation V34(2): 195-212.
- Weber, J. (2006). "Reflections on the future of accessibility." Journal of Transport Geography 14(5): 399-400.
- World Bank (1995). Sustainable Transport: Priorities for Policy Sector Reform. Washington, DC: The International Bank for Reconstruction and Development.
- Yamins, D., S. Rasmussen, et al. (2003). "Growing Urban Roads." Networks and Spatial Economics 3(1): 69-85.
- Zeisel, J. (1981). Inquiry by Design: Tools for Environment Behavior Research. Monterey CA: Brooks/Cole Publishing Company.

Appendices

Appendix A: Survey Questions

1. What type of organization is this? (check all that apply)

- Public Transportation
- Private Transportation
- Volunteer Organization that provides transportation as a primary service
- Volunteer Organization that provides transportation as one of many services
- Non-volunteer Organization that provides transportation as a primary service
- Non-volunteer Organization that provides transportation as one of many services
- Older adults' Residence
- Church
- Recreation Centre
- Non-Profit
- For-Profit
- Government Funded
- Other _____

2. Does your organization operate its own vehicle(s) or use volunteer driver(s) and vehicle(s)? If yes, go to the next question. If no, please skip to question 21.

3. Whom does your organization provide transportation for? (Check all that apply)

- Everyone
- Anyone who meets eligibility criteria
- People over the age of 65
- People with disabilities
- Only those affiliated with your organization (ie: customers, residents, etc)
- Other:

4. What eligibility criteria must people meet before they can use your service?

List all criteria that apply:

5. For what purposes can people use your service?

- | | Yes | No |
|----------------------------|-----|-----|
| • Shopping | [] | [] |
| • Medical appointments | [] | [] |
| • Non-medical appointments | [] | [] |
| • Errands | [] | [] |
| • Social visiting/events | [] | [] |
| • Entertainment | [] | [] |
| • Social Programs | [] | [] |
| • Other _____ | | |

6. How many paid workers does your organization employ?

7. How many are directly involved in your transportation services?

8. How many people volunteer in a given month for your organization? And for how many hours per week on average do they work?

9. How many volunteers are involved in your transportation services? And for how many hours per week on average do they work?

10. What areas of the CRD do you serve with transportation? (circle all that apply)

Victoria	Saanich	Oak Bay	Central Saanich	North Saanich
Esquimalt	View Royal	Colwood	Langford	Metchosin
Sooke	Sidney	East Sooke	Salt Spring/Gulf Islands	

11. What are your transportation service hours?

Sunday	_____	to	_____
Monday	_____	to	_____
Tuesday	_____	to	_____
Wednesday	_____	to	_____
Thursday	_____	to	_____
Friday	_____	to	_____
Saturday	_____	to	_____

12. How are trips on your vehicles requested/booked? (Circle all that apply)

In person By telephone By email/web

By caregivers Other _____

13. How much advance notice is required to secure a trip?

14. What types of vehicles do you operate, and how many of each? (Please fill in the following table)

Vehicle Type	Number	# that are W/C Acc*
Car		
Mini-Van		
Large Van		
Mini-Bus		
Full sized Bus		

*Wheelchair Accessible

15. How many passenger-trips do you provide each month?
16. How many passenger-trips per month is your organization capable of providing (approximate if necessary)?
17. How much do you charge for a trip?
18. How are your transportation services funded?
19. How do you promote your transportation services?
20. How does your organization determine where to provide transportation?
21. What other transportation service providers does your organization work with?
22. What is the nature of the relationships you have with other organizations that provide transportation to your customers? (For instance, do you share vehicles? drivers? Schedule events together? Etc...)
23. What other organizations does your organization work/partner with?
24. How does your organization work/partner with other service providers?
25. How would you define the following two terms?

Accessibility: _____

Mobility: _____

26. Any other comments?

Appendix B: Interview Questions

Interview Instrument: Set One

1. Are you or is your centre involved with older adults who do not drive?
2. What do you see as the main transportation needs of your clientele/customers/residents who don't drive?
3. How do they maintain mobility?
4. What transportation services do they use?
5. What do they like about these transportation services?
6. What do they not like about these transportation services?
7. What are the ways these older adults coordinate and arrange their transportation?
8. Do they travel more or less outside of the home now that they don't drive? What are the reasons behind this?
9. How has living without a personal vehicle changed how they get around?
10. How would you improve these transportation services to better serve them?
11. What would make it easier for them to maintain mobility (short of owning and operating a private vehicle)?
12. What quality of life issues do you see as being associated with older adults no longer driving?
13. What do you think their future transportation needs will be?
14. Are there any other transportation-related issues that you think need to be discussed?

Interview Instrument: Set Two

Coordinated Transportation:

Coordinated transportation services is the coming together of two or more agencies, the sharing of personnel, capital, and/or financial resources, to more efficiently accomplish their transportation objectives.

Three ways in which coordinated transportation systems come about: through government mandate, through government funding and local initiative, and through local initiative alone.

Findings:

- Canadian society rapidly aging: 13% of population over 65 in 2005, 25% in 2050.
- Fastest growing demographic is those over 85.
- The older an individual is, the less likely they are to drive themselves, more likely to have a disability and live alone.
- Limited funding, many and growing transportation needs, numerous transportation providers, underutilized vehicles (churches, senior homes/centres, taxis, volunteer drivers, transportation companies)

- Current transportation not geared towards seniors
- Uncoordinated service leads to overlapping services, underutilized vehicles, and unnecessary trips – misallocation of scarce resources

Proposed Intervention:

- Financial incentives to private vehicle owners
- Role of the planner:
 - Identify needs
 - Identify transportation providers
 - Work with funding agencies
 - Set goals and objectives
 - act as a facilitator between competing organizations
 - help overcome obstacles to coordination (funding, turf, administration)
 - monitor service changes
 - see if goals and objectives are being met
 - meet with customers and clients to assess if needs are being met or have changed
 - continually tweak the system to continually address changing needs
- Economies of scale can be achieved in administration, reducing costs; vehicles can be routed more efficiently, and vehicles can carry more people per trip.

Appendix C: Consent Forms

Survey Consent Form

Informed Consent

Research Project Title: Planning for the changing transportation needs of older adults: A whole systems approach.

Researcher: Darin Ramsay, Masters of City Planning Candidate

This consent form, a copy of which should be made by you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The purpose of this research is to discover the connections between how non-driving older adults organize their transportation and how transportation providers work together and with older adults to provide efficient service. It is proposed that a more efficient network could arise given the right conditions and connections.

You are being asked to participate in a survey. There are no anticipated risks to this study other than those encountered during daily life. This survey asks questions related to your organization's transportation service. Every effort will be taken to ensure complete confidentiality. You are not being asked to identify yourself, only the organization you work for. This information will not be included in the study. In the written study, your organization will only be identified by a few generic characteristics (eg: taxi company, care home). Only the researcher will have access to the survey you fill out.

The results of this study will be presented to those interested during the summer of 2008 at the locations to be determined. These presentations will be open to the general public. If you would like a copy of the study when completed or an invitation to the presentation of this study, please indicate at the end of this form.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial

consent, so you should feel free to ask for clarification or new information throughout your participation.

<p>Darin Ramsay Master of City Planning Candidate, University of Manitoba 116-1300 Yates St. Victoria BC V8S1Z9</p>	<p>Ian Wight PhD MCIP Associate Professor and Head, City Planning Faculty of Architecture, University of Manitoba, Winnipeg MB R3T 2N2 Canada</p>
--	--

This research has been approved by the Joint-Faculty Research Ethics Board (JFREB). If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Secretariat at 474-7122, or e-mail margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

Participant's Signature

Date

Researcher and/or Delegate's Signature

Date

If you would like a copy of this study when it is completed, please provide me with an address and/or email:

Would you also like to be invited to the presentation of the results of this study?

YES NO

If yes, please indicate the best way to contact you:

Interview Consent Form

Informed Consent

Research Project Title: Planning for the changing transportation needs of older adults:
A whole systems approach.

Researcher: Darin Ramsay, Masters of City Planning Candidate

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The purpose of this research is to discover the connections between how non-driving older adults organize their transportation and how transportation providers work together and with older adults to provide efficient service. It is proposed that a more efficient network could arise given the right conditions and connections.

You are being asked to participate in an interview about a ½ hour in duration. There are no anticipated risks to this study other than those encountered during daily life. During this interview, your opinions and ideas will be electronically recorded as well as noted down by a human recorder. This is to ensure that all ideas and opinions arising from the interview are caught and used in the study. Every effort will be taken to ensure complete confidentiality. You are not being asked to identify yourself by anything other than your first name. In the written study, you will only be identified by a few generic characteristics (eg: director of a volunteer service organization). Only the researcher will have access to the electronic recording as well as to the notes taken by the human recorder.

The results of this study will be presented to those interested during the summer of 2008 in Victoria. These presentations will be open to the general public. You will be provided with a printed copy of the study upon request.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial

consent, so you should feel free to ask for clarification or new information throughout your participation.

Darin Ramsay Master of City Planning Candidate, University of Manitoba 116-1300 Yates St. Victoria BC V8S1Z9	Ian Wight PhD MCIP Associate Professor and Head, City Planning Faculty of Architecture, University of Manitoba, Winnipeg MB R3T 2N2 Canada
--	---

This research has been approved by the [insert full name of appropriate REB]. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Secretariat at 474-7122,

1. **A copy of this consent form has been given to you to keep for your records and reference.**

Participant's Signature

Date

Researcher and/or Delegate's Signature

Date

If you are interested in receiving a copy of this study, or being invited to the presentation of my results, please leave your contact information below:

