




Final Report

Mobility Scooter Research Project

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NOTE:

The views expressed in this report are those of the authors and not necessarily those of the University of the Fraser Valley, the City of Abbotsford or the Scooter Working Group of the City of Abbotsford.

Executive Summary

In common with many other countries, evidence suggests that the number of powered wheelchairs and scooters has increased in recent years in the eastern Fraser Valley region (i.e. Abbotsford, Chilliwack, Hope, District of Kent [Agassiz], Harrison Hot Springs and Mission). Clearly, this is of great benefit for the mobility of seniors and people with disabilities, but there are a number of concerns. Anecdotal evidence suggests that the number of accidents involving these vehicles is increasing. This raises questions regarding whether there should be regulations for scooters. When the term “scooter” is used in this report, it refers to both a mobility scooter and powered (electric) wheelchair.

The UFV Centre for Education and Research on Aging (CERA), in collaboration with the Scooter Working Group of the City of Abbotsford, conducted a research project regarding the use of mobility scooters in the region. The overall purpose of the research project is to develop a set of recommendations and draft guidelines that will provide the basis for establishing an appropriate policy framework and educational programs in the area of mobility scooter use. The research project aims were to provide a description and analysis of the different aspects of scooter use in terms of user patterns and issues, including regulatory issues, with scooter use from the perspective of scooter users and stakeholders.

Methodological triangulation was employed by using multiple data collections methods including document analysis, in-depth-interviews, focus groups, observations of scooter routes, pilot education programs (qualitative methods), and a community survey of scooter users (quantitative method). The findings of this study should not be generalized beyond the eastern Fraser Valley region, although the findings may resonate with other communities.

The most consistent finding in this study was the view of the importance of mobility scooters in maintaining and enhancing users’ quality of life. This finding had a high level of consensus among the participants in the research, including stakeholders and scooter users. The general sentiment is that mobility scooter use “*must be protected*”. However, any changes in legislation and/or regulation should be considered very carefully in terms of the impact these changes may have on user patterns and their quality of life. An estimate of the number of scooter users in the region was made on the basis of the total population of a specific age group and the percentage of individuals in the age group with mobility related disabilities. It is acknowledged, however, that the estimate of approximately 250 to 300 scooter users in the region might err on the side of being conservative.

In this exploratory research study, attempts were made to collect data on scooter users in the region and to begin to describe who the scooter users are, where they drive their scooters, what activities they engage in, and what difficulties they experience when using their scooters. In summary, the groups of scooter users surveyed tended to be in their mid seventies (middle-old category), single, live alone, and most reside in assisted living facilities. Most of the scooter users rate their own health as fair/poor. This rating appears to be congruent with the nature and number of chronic health problems experienced by scooter users. The prevalence of chronic diseases appeared to be higher in scooter users.

Findings indicate that most scooter users in the region use their scooters on a regular (daily/weekly) basis on sidewalks, on the road when crossing the road, and in shops/stores. The most popular winter and summer activities for users are taking a ride, doing their shopping and going to the corner store or coffee shop.

The majority of stakeholders and scooter users would like to maintain, in principle, the current status of a mobility scooter as a pedestrian. However, the fact that scooters have become increasingly capable of operating at higher speeds (up to 20kph), was identified as a major concern and a speed limit on sidewalks was suggested. No conclusive evidence could be found on scooter use of bicycle lanes or whether scooters should drive with, or against, the flow of traffic. These issues will require further investigation.

Findings suggest that the assessment of scooter users have two distinct purposes namely assessment of the need to use a scooter and an assessment of fitness as users to operate a scooter. It was concluded that even though the issues around “scooter driver fitness” are of vital importance, only the assessment of need to have a scooter should be regulated at this point in time. There was a high level of agreement amongst stakeholders and scooter users that scooter driver training is essential for scooter users. Based on the findings, a scooter education/training structure or model, named “*Scooter Smart*” was developed and implemented in a scooter education pilot project in two communities in the region. A scooter users guide was developed to accompany the scooter education model.

Findings confirm the importance of the environmental context in which scooters operate. Users operate their scooters on sidewalks, on the roads (when there are no sidewalks or cross the road), on bicycle lanes, and in pedestrian environments such as parks, trails, and shopping areas. It is the responsibility of the entire community, including local, provincial and federal government to develop and maintain a context and an awareness for scooter drivers so that they can operate in a safe and comfortable way.

The overarching recommendation is that the communities of the eastern Fraser Valley need to implement strategies to ensure the accommodation of an increase in scooter use in the communities. The following recommendations suggest action that will assist in creating scooter friendly communities:

- (1) Maintain the current status of scooters as “pedestrians”;
- (2) Set a speed limit on sidewalks of 8kph;
- (3) Undertake a pilot project in the region on assessment of need and the registration of scooter users;
- (4) Implement and further research the “*Scooter Smart*” scooter education program;
- (5) Develop scooter friendly cities in the eastern Fraser Valley;
- (6) Conduct further research on multi-use of bicycle lanes;
- (7) Develop and maintain a data collection strategy on mobility scooters; and
- (8) Conduct further research on scooter use.

Final Report

Mobility Scooter Research Project

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1. Introduction

A mobility scooter is a battery powered, three or four-wheeled vehicle designed for individuals who have difficulty walking. There are scooters for indoor use, for outdoor use, and indoor-outdoor use. A mobility scooter needs to be distinguished from a Vespa-like or Moped-like two wheel “motor scooter.” For the purpose of this research study, a “scooter” is defined as a battery powered personal mobility device with three or more wheels that is steered manually. The term “scooter” in this report refers to both the scooter-type device steered manually by handlebars and powered wheelchair-type controlled by a joystick. When the term “scooter” is used in this report, it refers to both a mobility scooter and powered (electric) wheelchair.

Personal mobility is a vital part of daily life for all including many older adults and persons with disabilities and is the key to independent living. Losing the ability to get around independently has a detrimental effect on the quality of life of older adults. There is an awareness of the demographic trends, and of the need to ensure that older adults retain independence.

Generally, evidence from discussions with stakeholders suggests that the powered wheelchair and scooter market is booming and that sales, particularly of scooters, are likely to continue to increase over the coming years. There appear to be a growing market for such vehicles among people who have difficulty with walking or standing for long periods, but who would not consider themselves to be disabled. In many cases, a scooter is seen as being a convenient alternative to public transport (which is still considered by many to be inaccessible) or a replacement for the private car, for shorter distances, when the user no longer feels confident enough to drive.

The discussion on the subject of motorized/powering wheelchairs and scooters focuses not only on the benefits of keeping people mobile, but also includes concerns about safety for scooter users and for other road users and pedestrians. In common with many other countries, anecdotal evidence suggests that the number of powered wheelchairs and scooters has increased in recent years in the eastern Fraser Valley (Abbotsford, Chilliwack, Hope, District of Kent [Agassiz], Harrison Hot Springs and Mission). Clearly, this is of great benefit for the mobility of many disabled people, but there are a number of concerns. Statistics on the number and use of powered wheelchairs and scooters are not complete, however anecdotal evidence suggests that the number

of accidents involving these vehicles is increasing. This raises questions on whether there should be a requirement for users to be given training in how to use their vehicles and whether they should have insurance. There are also questions relating to the legislation and regulations that apply to powered wheelchairs and scooters.

It is anticipated that there will be an “explosion” of scooter use in Abbotsford and surrounding communities in the future. There are many unanswered questions about scooter use. In terms of sidewalks, traveling on a scooter means negotiating bumps, dealing with both the unevenness of streets and the many telephone poles on Abbotsford streets. Many of the sidewalks are reported to be angled and there is a concern about tipping over. This is a concern for pedestrians, cyclists, and scooter users alike.

In previous studies on elders in Abbotsford and transportation of elders in Abbotsford (Chan & Steyn, 2006 and 2007), there was general consensus that scooters should not be banned but rather regulated. Concerns about the use of scooters include driving on the road, conditions of the sidewalks and lack of ‘slipways,’ assessment of elders’ fitness to drive a scooter, instruction and training for elders who use scooters, and scooter parking. Insurance and liability issues are a consideration when scooters are involved in an accident.

The UFV Centre for Education and Research on Aging (CERA), in collaboration with the Scooter Working Group of the City of Abbotsford, conducted a research project on the use of mobility scooters in the eastern Fraser Valley region. The overall purpose of the research project is to develop a set of recommendations and draft guidelines that will provide the basis for establishing an appropriate policy framework and educational programs in the area of mobility scooter use.

More specifically the objectives of the mobility research project can be described as follows:

- (1) To provide a description and analysis of the different aspects of scooter use in the eastern Fraser Valley (Abbotsford, Chilliwack, Hope, District of Kent [Agassiz], Harrison Hot Springs and Mission) in terms of:
 - User patterns
 - Issues (including regulatory issues) with scooter use from the perspective of scooter users and stakeholders.
- (2) To develop a set of recommendations and draft guidelines that will provide the basis for the establishment of an appropriate policy framework and educational programs in the area of scooter use.

2. Methodology

Working with the City of Abbotsford and the Centre for Education and Research on Aging (CERA) at the University of the Fraser Valley (UFV), the research project was given approval in the fall of 2007. Data collection was undertaken from October 2007 to March 2008. The project and process is guided by a Scooter Research Advisory Committee. Organisations represented on this committee include the City of Abbotsford, ICBC, Abbotsford Community Services, Seniors Healthy Aging Resource Environment Society/ Fraser Valley Seniors Resource Centre, and the

BC Traffic Safety Foundation. The project was approved by the UFV Institutional Review Board.

Methodological triangulation was employed by using multiple data collections methods including document analysis, in-depth-interviews, focus groups and observations of scooter routes, and pilot education programs (qualitative methods), and a community survey of scooter users (quantitative method).

2.1 Review of Regulations

One of the challenges faced by the researchers is the lack of information available on mobility scooter use and the limited research done in this area. General information on scooters is readily available from scooter manufactures and distributors and vendors. In spite of information searches on several data bases and the internet search engines, no research studies on specifically the use of mobility scooters in Canada could be found. Some research has been undertaken on powered wheelchairs in facilities for the elderly. The search for information was often complicated by the confusion about terminology. The term “scooter” also refer to “motorcycle – type” of scooter or to skateboard-types often used by children. Numerous research studies have been done in those areas and had to be excluded from the study on mobility scooters.

For the review on mobility scooter regulations, the researchers relied mostly on information obtained from the United Kingdom, Denmark, and Australia. Information was categorized and analysed in terms of scooter classifications systems, speed limits, driving location, other issues (e.g. scooter registration and insurance), and scooter driver fitness and training.

2.2 Stakeholder Consultations: Interviews and Focus groups

The research project was promoted by articles and advertisements in community newspapers and newspapers/newsletters for seniors in the involved communities. Posters, flyers, and e-mails were sent to a wide range of organizations and scooter vendors to promote the project and invite stakeholders to participate in the study. Stakeholders were asked to contact the CERA office for more information and to receive a personal invitation to be interviewed or to attend a focus group. The researchers also sent numerous e-mail invitations to stakeholders to elicit participation from stakeholders. If a stakeholder was unable to attend a focus group meeting, the researchers offered to conduct an individual interview, usually at the stakeholder’s place of employment.

A total of 86 stakeholders were included in the study. Either they attended a focus group (71 stakeholders) or were individually interviewed (15 stakeholders) by a researcher. Stakeholders represented all the communities involved namely Abbotsford, Chilliwack, Hope, District of Kent (Agassiz), Harrison Hot Springs and Mission. A summary of the stakeholders who participated in the study is given in Table 1.

Table 1: Types of organization, positions and profession represented by stakeholders

Type of Stakeholder Representative	Participants
Type of Organizations represented	<p>Community Services (Abbotsford, Hope Agassiz-Harrison, Mission). Municipalities (Abbotsford, Hope, Chilliwack). City Councils (Abbotsford and Chilliwack). Fraser Health Region (Abbotsford, Chilliwack, Hope, Agassiz, Mission, Harrison). Groups and programs for seniors (Abbotsford, Chilliwack, Agassiz, Harrison, Mission and Hope). Groups and programs for people with disabilities (Abbotsford, Mission). Assisted and independent housing facilities (Abbotsford, Chilliwack, Mission, Hope and Agassiz). Transportation Advisory Committee (Chilliwack and Abbotsford). Police Department and RCMP (Abbotsford and Chilliwack). Fire Rescue Service (Abbotsford). ICBC (Abbotsford and Chilliwack). Scooter vendors (shops) (Abbotsford and Chilliwack).</p>
Positions in Organizations represented	<p>Advocates for seniors and people with disabilities. Executive directors of organizations. City councilors. Safer City Coordinators. City engineers and city traffic engineers. City planners and Social planners. Fire Rescue Services: Deputy chief. Police officers: Community Policing. Police officers: Traffic Section. Health Care managers. Home Health Case Managers. Home Health Rehabilitation Managers. Home Health Social Workers Managers of Assisted Living and Independent Living Facilities. Support workers for seniors and people with disabilities. Coordinators of programs for seniors and people with disabilities. Loss Prevention Coordinators. Managers of “mobility scooter shops”. Mobility Scooter technicians</p>
Professions represented	<p>Occupational Therapists Physiotherapists Social workers</p>

	Nurses Financial Advisors Police Officers Fire fighters City Planners Social Planners Transportation engineers Geriatric Psychologist
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A wide range of organizations as well as people holding different positions or having diverse professions were involved in the stakeholder focus groups and interviews.

Focus groups are an accepted methodological approach for exploring knowledge and experiences. (Klein & Parks, 2007; Kreuger, 1988; Merriam, 1998; Yin, 1989.) Focus groups take advantage of the energy created by group discussion in generating ideas and descriptions that might not be achieved through questionnaire or individual interviews. The groups provide some benefit to participants because participants often gain information or make contacts as a result of the discussions.

The focus groups were facilitated by one of the researchers. Questions asked of the groups and individuals were intended to elicit participants' views and did not require the disclosure of any confidential or sensitive information. The researchers, with input from the Scooter Research Advisory Committee, developed a semi-structured interview schedule of questions. Questions focused on classification systems for scooters, regulations, pedestrian environments, responsibility of the industry, scooter driver fitness, (testing and assessment), scooter driver training, visibility of scooter drivers, and scooter registration and insurance. The interview schedule was used to direct the discussions of the focus groups and interviews. Some groups required more probing questions to gain an understanding of specific areas. Participants were assured of anonymity and confidentiality. No quotes are attributed to any individuals. The focus group discussions and interviews were audio-taped with the consent of the participants and the groups lasted between one and two hours. UFV students were utilized as research assistants assisting with note taking and other administrative tasks.

A thematic analysis was conducted using the audiotapes and the notes taken at the groups. Thematic analysis required a summary of ideas and issues that arose out of the groups. Specific details and examples in this report are used to highlight issues rather than to provide a comprehensive listing of examples that were given. This report identifies the themes arising from the focus groups and interviews with stakeholders.

2.3 Survey (questionnaire) to Scooter Users conducted by Interviewers.

In addition to eliciting opinions from stakeholders, it was considered vital to survey the scooter users themselves. A survey was designed with the intention to include all scooter users in the geographical region. Because there is no national, provincial, regional or local registration system for scooters, it was not possible to determine the numbers of scooters in the region. Based

on a “formula” to estimate the numbers of scooter users in a community (see the discussion on scooter user estimates later in this report), it was estimated that there might be between 250 and 300 scooter users in the region.

The researchers with input from the Scooter Research Advisory Committee developed the survey instrument (interview schedule/questionnaire). A pilot study was completed and the questionnaire tested with a sample of 5 scooter users in Mission, Abbotsford, and Chilliwack in October and November 2007. The finalized questionnaire that was used in the main survey included questions on biographical information (age, gender, education, income etc.); health status, motor vehicle driving patterns, information about scooter type, purchase, assessment of fitness to operate scooter and insurance. A major part of the interview schedule/questionnaire focused on the elicitation of information about scooter user patterns and included questions on where scooter drivers drive/use their scooters and for the purposes and activities for which they used it. Scooter users were also given the opportunity to provide additional information to the interviewers about issues they perceived to be important and that were not covered in the interview schedule/questionnaire.

The intention was to include all the mobility scooter users in the region. Scooter users were invited to contact the CERA office for more information and to receive a personal invitation to be interviewed in their homes or any other location of their choice. Promotion of the scooter survey was done through articles and advertisements in community newspapers and newspapers/newsletters for seniors in the communities involved. Posters, flyers, and e-mails were sent and personal contacts made with a wide range of organizations, seniors facilities, and scooter vendors to promote the project and invite scooter users to participate in the study.

The interviews were administered by senior (4plus year) social work and adult education students with interviewing experience. Most interviews were conducted in scooter users’ homes, apartments or suites. It usually took about one hour to complete the questionnaire, however the research assistants reported that most interviews lasted about one and a half hours. Scooter users appeared to appreciate the opportunity to talk about their scooters and how they use them. Scooter users also spontaneously offered information and disclosed their perception about the issues and difficulties they experience as scooter users.

Data collection commenced in November 2007. Because of time constraints, only questionnaires complete by the end of February 2008 were included for analysis in this report. A total of 53 scooter users were interviewed and questionnaires completed and included for analysis. This is about 20% of the estimated number of scooter users in the region.

2.4 Assessment of selected Scooter Routes

Based on the information obtained from the stakeholders (focus groups and interviews) and scooter users (survey), the researchers were able to identify the major difficulties experienced by scooter users when they are using their scooters in the communities. For purely illustrative purposes, the researchers selected scooter routes and documented the “issues and strengths” for scooter users. These examples were documented by photographs and comments about the implications for scooter users. The selected scooter routes were mainly close to residential

facilities for seniors and close to major health care facilities in the community. The communities from which the examples are taken are not specifically identified. The intention of the researchers is not to illustrate the issues and strengths of a particular community, but rather to draw attention to the typical difficulties scooter users experience throughout the region. Further the intention is to illustrate with good examples how communities in the region have already provided environments that are conducive to safe scooter use.

2.5 Scooter user Education

One of the purposes of this research project on mobility scooters is to develop a set of recommendations and draft guidelines that will provide the basis for establishing educational programs in the area of mobility scooter use. This part of the study focused on scooter education and training. Based on the research findings, a framework for the implementation of a scooter education program was developed. The framework was implemented in two communities and different settings as part of a pilot project. A summary is provided of the educational framework used and outlines observations made during the implementation of the educational framework.

3. Results

3.1 Overview of Regulations for Mobility Scooters

One of the goals of the research project on mobility scooters in the eastern Fraser Valley is to review the legislative frameworks existing for scooters in other jurisdictions. Information sources from different countries and regions were reviewed and the findings were summarized and categorized. The results are summarized in Table 2.

The selection of countries and regions were based on the availability and clarity of information about mobility scooter regulations in a particular country or region. Countries and regions included are the United Kingdom (UK), Denmark, Sweden, the Netherlands, France, Spain, Australia (state of Queensland), New Zealand, and British Columbia, Canada.

The different mobility scooter regulations were categorized in terms of whether a jurisdiction has a classification system, regulations for driving location, regulations for speed, and other types of regulations (see Table 2). The review also included a search for regulations on the assessment of scooter users' fitness and scooter user education and training.

Table 2: Classification and Regulations of Scooters/ powered wheelchairs

Country	Classification and Regulation
UK	Classification Class 2: "Invalid Carriage". Follow road rules for pedestrians. Class 3: Road Vehicle, Follow road rules for vehicles.

	<p>Driving location Class 2: Use on sidewalks or footways. Can also be used on the road (carriageway) but only to cross a road, sidewalk-to-sidewalk, or along the road where there is no sidewalk. (Class 2 vehicles are not generally designed for the road).</p> <p>Class 3: Use on the road. Can only be used on the sidewalk if their top speed is reduced down to 6.4kph.</p> <p>Speed Class 2: Scooters/ powered wheelchairs that are limited to a top speed of 6.4kph. Class 3: Scooters/ powered wheelchairs that are limited to a top speed of 12.9kph.</p> <p>Other Regulations Class 2 scooters are not required to be registered.</p> <p>Class 3 scooters must comply with requirements for lights, directional indicators, a horn, rear-view mirror, rear reflectors, and an amber-flashing beacon for use on dual carriageways.</p> <p>Class 3 scooters must be registered for road use, and be licensed in the "disabled" taxation class. Class 3 scooters are exempt from paying the first registration fee and are not required to display registration plates.</p> <p>The UK has no legal requirement for scooter insurance, but scooter users are strongly advised to have insurance. Suitable schemes are not too expensive and are available to cover personal safety, other people’s safety, and the value of the vehicle.</p>
Denmark	<p>Classification Scooters are classified as “motor vehicles.” Follow road rules for bicycles with exceptions.</p> <p>Driving location The use of powered wheelchairs and scooters in Denmark follows rules for bicycles. However, they can be used on sidewalks if the speed is adapted to the surroundings.</p> <p>Speed No speed limit. Speed must be adapted to surroundings.</p> <p>Other Regulations Scooters do not usually carry any insurance.</p>
Sweden	<p>Classification Slower scooter: Considered a “pedestrian” (follow road rules for pedestrians).. In Sweden, a powered wheelchair or scooter can be driven everywhere that a pedestrian can walk, provided that it is limited to walking speed (4 to 5kph).</p> <p>Faster scooter: Follow road rules for bicycles. If it is driven faster than 4 to 5kph, it</p>

	<p>has to abide by the regulations governing bicycle use, which include a maximum speed of 15kph in areas shared by pedestrians.</p> <p>Driving location Slower scooter: Can be driven everywhere that a pedestrian can walk, provided that it is limited to walking speed (4 to 5kph).</p> <p>Faster scooter: Must abide by the regulations governing bicycle use, which include a maximum speed of 15kph in areas shared by pedestrians.</p> <p>Speed Slower scooter: Only in pedestrian areas. Speed limit of walking speed (4 to 5kph).</p> <p>Faster scooter: Must abide by the regulations governing bicycle use, which include a maximum speed of 15kph in areas shared by pedestrians.</p> <p>Other Regulations Insurance is not mandatory, however scooter users are strongly recommended to have insurance for fire, theft, rescue, and legal protection.</p>
Netherlands	<p>Classification No classification</p> <p>Driving location In the Netherlands, powered wheelchairs and scooters can be used on sidewalks, bicycle paths or the road as appropriate.</p> <p>Speed No speed limits</p> <p>Other Regulations The only direct regulation is that the minimum age of the user must be 16.</p> <p>Insurance: In the Netherlands the minimum requirement is for third party liability:</p>
France	<p>Classification France also distinguishes between two classes of “powered vehicle” by reference to maximum speed.</p> <p>Driving location Slower Class: allowed to be used on the pavement and also on the right-hand side of the road. Faster Class: the regulations applied are those that relate to motorcycles and motor scooters.</p>

	<p>Speed Slower Class: Those that have a top speed of 6kph are allowed to be used on the pavement and also on the right-hand side of the road.</p> <p>Faster Class: For scooters with a top speed above 6kph to a maximum of 45kph, the regulations that relate to motorcycles and motor scooters apply.</p> <p>Other Regulations Insurance is required for the higher speed vehicles (6 km/h and over) in France, but not for the lower speed vehicles,</p>
Spain	<p>No Regulations</p> <p>At present, there are no regulations in Spain covering mobility scooters. It is recommended by the mobility scooter industry that scooter users follow the UK regulations. It is anticipated that mobility scooter regulations will be developed for Spain in the near future.</p>
Australia: State of Queensland	<p>Classification A scooter must register as a “motorized wheelchair”, is considered a “pedestrian” when top speed is less than 10kph and must follow the road rules for pedestrians. (In all states of Australia, faster scooters with a top speed of more than 10kph are classified as vehicles and require a license and registration.)</p> <p>Driving location Scooters must drive on the footpath (sidewalk) or nature strip at all times or, if the footpath or nature strip is unsuitable, scooter must drive as close as possible to the left or right side of the road.</p> <p>Speed Travel at a speed not faster than 10kph.</p> <p>Other Regulation: Mobility scooters need to be registered. Registration is free in the state of Queensland.</p> <p>A mobility scooter is to be used only by the registered operator, who</p> <ul style="list-style-type: none"> - Has a doctor’s certificate stating that due to severe movement impairment they have a need to use the device for assisted travel; - Is capable of safely operating the wheelchair; and - Will abide by the Queensland Road Rules. <p>Scooter users must</p> <ul style="list-style-type: none"> - Exercise due care and attention for the safety of others at all times;

	<ul style="list-style-type: none"> - Use the most direct route available when crossing a road; - Not travel on the road alongside more than one other pedestrian or vehicle traveling on the road in the same direction, unless it is necessary to overtake other pedestrians; - Comply with other road rules as they apply to pedestrians.
<p>New Zealand</p>	<p>Classification A scooter is classified as a “wheeled mobility device” and must follow the road rules for pedestrians.</p> <p>Driving location Must use the footpath, when it is readily accessible, and stay close to the side of the road when a footpath is not readily accessible.</p> <p>Speed: When on the footpath (sidewalk), the scooter user must not travel at a speed that endangers others.</p> <p>Other Regulations It is illegal for a scooter operator to let any person ride her/his mobility scooter in a way that may cause the operator or the other person injury. If involved in a crash, the scooter operator must stop to see if anyone is injured, help anyone who is injured, and report the crash to the Police within 24 hours.</p> <p>In New Zealand, scooter users are warned that there are penalties for breaking the law and that careless use of a mobility scooter or power chair carries legal implications. For example, operating a scooter carelessly, inconsiderately, or at a hazardous speed can result in a fine of up to \$1000. If a scooter user causes a crash where someone is injured or killed, the scooter user could be convicted of careless or inconsiderate use of a vehicle, and face a fine of up to \$4,500, or up to three months imprisonment.</p>
<p>British Columbia, Canada</p>	<p>Classification A scooter is classified as a “low-powered vehicle” and must follow the rules of the road that apply to pedestrians.</p> <p>Driving location: Must follow the same rules of the road that apply to pedestrians. Scooter users must</p> <ul style="list-style-type: none"> - Ride on the sidewalk and are prohibit to ride on the roadway if there is a sidewalk on either side of the road or highway; - Travel on the extreme left side of the roadway or shoulder of the highway facing oncoming traffic, if there is no sidewalk; - Obey all traffic control devices; - Obey school crossing guards and school traffic patrols; -Cross only at intersections or wherever there is a crosswalk; - Not leave a curb or other place of safety if traffic cannot safely stop.

	<p>Speed No speed limit Scooter users are encouraged to drive at the same speed as other pedestrian traffic.</p> <p>Other Regulations A scooter must be used for the purpose for which it was designed. A scooter does not require registration, a vehicle license or registration, driver's license, or vehicle insurance.</p>
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(Barham, Oxley & Board, 2004; Department of Transport, United Kingdom, The Driver and Vehicle Licensing Agency, n.d.; Government of the United Kingdom, The Highway Code, n.d.; Insurance Corporation of British Columbia (ICBC), n.d. and 2006; Land Transport New Zealand, 2005; Queensland Government, Queensland Transport, n.d.).

The review of regulations for mobility scooters indicates that most jurisdictions make a distinction between faster and slower scooters. This distinction is based on top speed capabilities of the scooters and forms the basis for scooter classification systems. The intention of the regulations appears to be speed regulation in different road or traffic environments. There appears to be consensus that scooters should travel at slower speeds in pedestrian environments (e.g., sidewalks) and should be “classified” or considered as pedestrians. Scooters traveling at higher speeds should not be in pedestrian environments and must travel on the road and be classified as a vehicle, a category that includes bicycles, motorcycles, and motor scooters. Usually the classification of the faster traveling scooters as vehicles is accompanied by a requirement of registration and licensing of the scooter. Faster scooters are also required to be more visible when on the road and some jurisdictions (e.g., the UK) require lights, directional indicators, a horn, rear-view mirror, rear reflectors, and an amber flashing beacon. In some jurisdictions, there is also the requirement of mandatory insurance for the faster traveling scooters.

It appears that some jurisdictions are attempting to set speed limits for different environments where mobility scooters operate. Speed limits for typical pedestrian environments, such as sidewalks, varies from normal walking speed (4-5kph) in Denmark to 10kph in Queensland, Australia. Regulations in France and the UK imply a speed limit on sidewalks of 6kph and 6.4kph respectively. Most jurisdictions directly or indirectly indicate that scooters traveling at faster speeds, should operate on the road and either follow the rules of the road for bicycles, motorcycles, or motor vehicles. Scooters are allowed on bicycle paths in the Netherlands but it is not clear if this is the case in other jurisdictions.

Regulations for scooter users in New Zealand are the most explicit about the consequences for breaking the scooter laws. Users are warned about legal consequences for the careless use of scooters. Operating a scooter carelessly, inconsiderately, or at a hazardous speed can result in a fine. If it causes injury or death, a scooter user could be convicted of careless or inconsiderate use of a vehicle, and face a fine or imprisonment.

Registration of the operator of a scooter is required in the state of Queensland, Australia. A scooter user needs a medical (doctor's) certificate to prove that the scooter is for mobility

purposes. The requirement of proof of a mobility problem appears to be an unique feature of the Queensland regulatory model.

The review also included a search for regulations on the assessment of scooter users' fitness to operate a mobility scooter and scooter user education and training. None of the jurisdictions reviewed require scooter users to have a driver's license to operate a scooter, and they are not required to have any proof of fitness to drive. The doctor's certificate required in the state of Queensland, Australia only certifies that the scooter user needs to use a scooter due to severe movement impairment. This certificate speaks to the need of the scooter user and not the individual's fitness to operate the scooter. The Queensland regulations however state that a mobility scooter is to be used only by the registered operator, who is capable of safely operating the scooter. It appears that there is an expectation of self-regulation and that scooter drivers will take responsibility themselves to define what is considered being able to safely operate the scooter. No regulations were found concerning mandatory education and training for scooter users.

In summary, scooters are not considered in most jurisdictions to be "motor vehicles", are exempt from many road traffic regulations and must follow the rules of the road that apply to pedestrians. Faster traveling scooters (traveling faster than about 8kph) are usually mandated to drive on the road, and are obliged to conform to many of the regulations pertaining to motor vehicles. The review confirms that there appear to be no legislation regarding issues such as fitness to drive, scooter insurance, or any requirements for scooter operator training and education.

3. 2 Stakeholder consultation

3.2.1. Regulation of mobility scooters

Location of operation and speed

The perceptions of stakeholders resulted in the identification of a possible regulatory system for mobility scooters, based on driving location and speed. This system can be categorized in three groups. First, a small group of stakeholders suggested there should be no regulations. A second, larger group of stakeholders believe that there should be one or other system based on location and speed. A third group suggested that there should be a formal and structured classification and regulatory system for mobility scooters.

Regulation

Stakeholders who believe that there should be no regulatory system made their suggestion based on a belief that all or most human beings have good judgment. They suggest that it should be left up to the individual's innate ability to judge where she/he should drive a scooter and how fast it should be driven at a particular time, and in a particular situation. This group of stakeholders opposed any form of regulation and prescription.

This argument is also based on the assumption that scooter drivers have the ability to determine for themselves what is required to drive safely in pedestrian environments (e.g. sidewalks). It was also argued that individuals have the ability to learn about scooter safety and the use of safe driving skills. Education and training would therefore enhance scooter driver's decision-making skills. However, a counter argument was presented that challenges the notion of "good judgment". Examples were given of scooter drivers with moderate or mild cognitive impairment and whose ability to use good judgment is questioned.

Some stakeholders argued that regulations were unnecessary because of the low probability of harm that is posed by scooters. Scooter users pose only a risk to themselves and a very low risk to others. It was suggested that regulations should be commensurate with the small risks posed by scooters. It was mentioned that bicycles are a "far greater risk" because they can travel at a much higher speed and therefore cause greater harm to the operator and others, than a scooter. Further, it was argued that it is a basic human right for an adult to choose the level of risk and to make an individual's choice on how to balance mobility needs with the potential risks involved. Some stakeholders voice the opinion that there is actually no real concern or problem with mobility scooters. They suggested that until mobility scooter usage becomes a problem, any regulation should be avoided.

Any regulation, including speed limit enforcement, would be difficult. Law enforcers deal with serious traffic offences. When compared to faster vehicles, and motor vehicles, scooters are perceived to be a "low risk" for harm to themselves and others. Technically it would also be difficult to enforce any form of speed limit for scooters. Radar equipment is currently not capable of registering speeds less than 30kph. This limitation of the radar equipment would make assessment of the speed of any scooter impossible at present.

Further arguments against regulation of scooters, were based on the perception that there is a lack of transport alternatives for people with mobility problems. Public transport and specialized transport services (e.g. handyDART) are not adequate and some scooter drivers "are forced to use their scooter because there are no transport alternatives readily available and accessible in the community".

"Slow scooters"

A "slow scooter" is defined as a scooter/power wheelchair with a top speed of less than 7kph. There was a high level of agreement amongst stakeholders that "slow scooters" should keep the current status as pedestrians. This means the scooter, only operates on the sidewalk and will only be on the road when there is no sidewalk or when the scooter driver crosses the road from sidewalk to sidewalk. The "slow scooter" is viewed as an extension of the human body and is an assistive device that enable a person to be more mobile. A "slow scooter" is not perceived as a vehicle. Stakeholders recognized the importance of the judgement of the scooter operator. For example, the scooter driver must use good judgment and adjust to a slower speed in a congested pedestrian environment. When a neighbourhood sidewalk is less congested, a scooter user can travel at a higher speed.

Most stakeholders agreed with the current status of scooter/power wheelchairs as “pedestrians”. However, differences between scooters and unmotorised pedestrians (pedestrians on foot) were highlighted. Scooters are perceived to be, and are in reality, different from an unmotorised pedestrian. Pedestrians walk erect, and they have different vision perspectives from a person sitting on scooter. Unmotorised pedestrians can also stop instantaneously and make quick movements (e.g. step out of the way or around a pole on the sidewalk). These maneuvers are not always within the scope and ability of a scooter and a scooter driver. A scooter can tip over when it turns and a rear wheel loses contact with surface. The top speed of the newest scooter on the market in Canada is close to 20kph. Stakeholders agreed that at a speed of 16-20kph, scooters create substantial safety issues, not only for the scooter operator, but also for unmotorised pedestrians in pedestrian environments.

Some stakeholders expressed concern regarding people who drive scooters on the road because the scooter users may *“perceive it as their “right” to drive on the road and, driving on the road poses a much more serious risk than driving on the sidewalk. It also puts car drivers at risk.”* An additional risk for scooter drivers on the road occurs when navigating around parked cars and the risk of been hit by the opening of vehicle doors.

There was general consensus amongst stakeholders that the speed limit for scooters on sidewalks should be less than 10kph. However, there was no agreement regarding what the speed limit should be. Perceptions on a speed limit include “normal walking speed” (i.e. about 3 to 4kph.), as well as 5kph, 6kph, 8kph, 6-8kph, and 9-10kph.

Some stakeholders were of the opinion that the aspects of speed that should be taken into consideration are the safe speeds for the scooter user and how safe these speeds are for pedestrians in pedestrian environments (e.g. on sidewalks). Drivers should be able to adjust their speed on the basis of perception of risk and judgement of congestion in the pedestrian environment. For example, it may be appropriate for a scooter driver to drive at 10kph on an uncongested sidewalk in a neighborhood. That 10kph speed may be too fast for driving on a sidewalk of the downtown core where there are more unmotorised pedestrians on sidewalks, in parking areas, and in shopping areas. The important variables to consider are the ability of the scooter driver to operate the scooter and the judgement of the scooter driver.

Issues regarding compliance and enforcement of a speed limit on the sidewalk were raised by stakeholders. It was suggested that a balance must be found between what is considered a “reasonable” speed limit, and what speed limit scooter drivers are willing to comply with. If the speed limit is “reasonable”, there may be a higher level of compliance. Some stakeholders refer to the possibility of a bylaw at local level to set a speed limit for scooters on sidewalks. In this regard, it was argued that “many bylaws that are in effect, are rarely enforced and only come to the attention of local government when there is a complaint.” That does not mean that, because it is not enforced other than on a complaint basis, a particular bylaw should not exist. The existence of a particular bylaw draws attention to and raise awareness around a particular issue. In the case of a speed limit for scooters, it may serve a similar purpose.

There was a high level of agreement that pedestrians need to be protected from scooters who operate at high speeds because it can cause serious injury. Some stakeholders emphasized that

the issue is not speed in itself but, the speed at interface, meaning the relationship between how fast a scooter travels within a particular environment. Most stakeholders held the view that because the newest models of scooters have the capability of a top speed of 20kph, the speed of scooters on sidewalks should be regulated.

A small group of stakeholders argued against setting any speed limits for scooters on sidewalks. Their argument is based on a belief that a scooter is an “extension of the body”. There are no speed limits for walkers, runners or bicycles, and therefore there should be no speed restrictions for scooters.

Proponents of the “slower scooter on the sidewalk” position also argued that if scooters are required to operate mainly on sidewalks, the conditions of sidewalks must be conducive to and suitable for safe scooter operation. Stakeholders echoed most of the expressed concerns about the conditions of sidewalk including uneven surfaces, obstructions like utility poles and construction, curb cuts, placement of buttons on poles at crosswalks. A major concern that was voiced in all the communities was the lack of sidewalks, particularly in residential neighborhoods, particularly older neighborhoods, and in semi rural and rural areas. There was a high level of agreement on the important role of local government to design and maintain sidewalks to ensure the safe operation of scooters on sidewalks.

The rules of the road dictate that scooters (classified as pedestrians) are allowed to travel on the road, if there is no sidewalk and, like a pedestrian, must travel against the flow of traffic. Even though the regulations are clear that scooters must travel against traffic when on the road, stakeholders, including law enforcement officers, observed that scooters travel with the flow of traffic when on the road.

Stakeholders were divided in their opinions on the direction of scooter travel when on the road. One group of stakeholders suggested that this rule should be applied with flexibility and that it should be left to the discretion of the scooter driver whether she/he will drive with, or against, the flow of traffic. In this case, scooter drivers must use their own judgment and should decide for themselves what makes most sense in a particular situation.

Arguments in favour of driving against traffic include the suggestion that oncoming traffic is more visible to the scooter driver, especially for scooter drivers with visual and/ or hearing impairments. Driving against traffic, makes it possible for the scooter driver to make eye contact with oncoming motor vehicle drivers. The ability to make eye contact with a car driver is perceived to be a major safety benefit for the scooter driver.

Most stakeholders hold the position that scooters, when on the road, must drive with the flow of traffic. Car drivers are often “*startled by a scooter coming up against them.*” The major benefit for scooter driving with traffic is that a scooter can make turns more safely. Most stakeholders concluded that scooters should be allowed to travel “*with the flow of traffic when on the road*” and must travel as “*far right*” on the road as safely possible.

“Fast scooters” not on sidewalks

A “fast scooter” is defined as a scooter/power wheelchair with a top speed of more than 7kph. Without exception, stakeholders agreed that the “faster scooters” must not be allowed on the sidewalks but should be “off sidewalk”. “Off sidewalk” was defined in different ways (e.g. on the road only, or a bicycle lane if available). A mindset is developing that a bigger and faster scooter is not an extension of a person’s body, but instead, has become a vehicle.

There was general consensus that if a scooter operates at a speed at 8-10kph or faster, it should not drive on the sidewalk. Scooters that drive at that speed must only operate on the road, classified as a “motor vehicle” and registered, licensed, and insured similar to a motor vehicle. It was also argued that when driving in excess of 8-10kph, the scooter operator must have a valid motor vehicle driver’s license.

Use of bicycle lanes

Stakeholders were divided in their perceptions on the use of bicycle lanes. Some stakeholders advocated strongly for “slow scooters” to use bicycle lanes. The main reasons for this position are that the bicycle lanes are perceived to be under-utilized by cyclists and that bicycle lanes address the problems scooter drivers experience on the sidewalks. Bicycle lanes are perceived by some stakeholders to have a smoother surface and have fewer obstructions and tip-over hazards than sidewalks. In comparison to bicycle lanes, sidewalks are bumpy, and the cuts and curbs for driveways make for a very uncomfortable ride on a scooter. Uneven surfaces exacerbate pain for scooter users with back problems. Driving on a bicycle lane has also the added benefit that the scooter cannot fall off the sidewalk. As one stakeholder put it “*a bicycle lane is better than a bad sidewalk.*”

Some stakeholders voiced strong opinions on the classification of “faster scooters” as bicycles. Faster scooters should drive on a bicycle lane or on the road, when a bicycle lane is not available. In that case, a scooter should drive in the direction of the bicycle flow or flow of traffic on the road.

Arguments against the use of bicycle lanes by scooters include the perceptions that bicycles drive much faster than the average scooter and can be dangerous for the scooter user. When operating on a bicycle lane, a scooter is more vulnerable because it is closer to fast moving motor vehicle traffic and does not have the protection of the curb. Some bicycle lanes are not wide enough to accommodate both scooters and bicycles.

A general concern that was voiced by stakeholders is the perception that motor vehicle drivers are unfamiliar with bicycle lanes. It was suggested that cars tend to veer into bicycle lanes and do not always check for bicycle when making a right turn. This tendency by motor vehicle drivers poses a risk to cyclists and would pose a major risk for scooter when operating on bicycle lanes.

It was pointed out that in some rural areas of communities bicycle lanes are in place but there are no sidewalks. In situations such as these, the scooters need to use the bicycle lane.

Regulations to ensure visibility and safe operation

There was a high level of agreement with the different requirements to increase visibility including lights, directional indicators, a horn, rear-view mirror, rear reflectors, and pole with a flag. The presence of a pole with a flag is especially perceived to be an essential feature on scooters to ensure visibility. However, stakeholders were divided on whether there should be regulations to make it mandatory to have the safety features or whether scooter users must be encouraged through scooter education and awareness programs to voluntarily use these safety features.

One argument against regulations in this regard was that unmotorised pedestrians (people on foot) are not regulated and forced to be visible, but are encouraged to do so by road safety education and awareness programs.

Some stakeholders posed the question about the use of helmets by scooter drivers. It was also argued that helmets for scooter users should be mandatory and regulated in the same way as for cyclists. Counter arguments for helmet use focused on the perception that scooters are inherently stable vehicles and there is no need to wear a helmet.

Proof of mobility need

The question of whether only individuals with mobility problems should be allowed to use a mobility scooter/ power wheelchair prompted a debate amongst stakeholders and the expression of diverse opinions. One aspect of the debate focused on the definition of “a mobility problem.” Most stakeholders agreed that the definition must be broader and more flexible than just mobility problems and should include aspect such as “*chronic health conditions that prevent individuals from operating a motor vehicle.*” For example, it was mentioned that, especially in the case of the elderly, it is not only the ability to walk that affected a person’s ability to actively participate in activities of daily living. Chronic health problems may indirectly or directly create mobility problems. It is also chronic health conditions like poor vision, hearing problems, and the lack of suitable and accessible transportation alternatives for people with special needs in a community. These conditions also contribute to isolation. There were general agreement that the definition of mobility problem must be broadened to that of people with “*mobility problems and special needs*” to account for other factors. As one stakeholder put it: “*Mobility problems are not only the absence of putting one foot in front of another – it is the absence of alternatives.*”

This perspective regarding mobility problems was also compared and contrasted with the existing model of handicap parking permits in BC. In this case, an applicant must go through an application process that requires a document completed by a health care professional. The main criterion for eligibility is the inability to walk. The argument was also connected with the recommendation that is usually given to “*check first with your physician or healthcare provider before you start an exercise or diet program.*” It was suggested that scooter users should be advised in a similar way to discuss their scooter use with a healthcare provider who is familiar with their overall health situation

Arguments in favour of limiting the use of scooters only to individuals with “*broadly defined mobility problems and/or special needs*” were based on the perception that there needs to be a differentiation between the need and desire to use a scooter. When an individual has a note or prescription from a physician or health care provider that states that the person is in need of a scooter as a mobility device to address mobility problems and or other mobility special needs that negatively affect the person’s mobility, this is a necessity to the person in order for them to be active and mobile. A scooter is perceived to be a mobility device and it is not meant to be used by people without mobility problems. Some stakeholders held the position that a person must have a prescription from a healthcare professional to use a scooter in public areas. It was also argued that the general public, and especially the elderly, should walk as much as possible because of the researched evidence of the benefits of walking in order to maintain health, muscle strength, and independence. Examples were provided by stakeholders of elderly individuals that rely too much on their scooters and who do not walk the distances that they are capable of managing. In this case, the principle of “*use it or lose it*” was emphasized.

Another argument that favoured limiting the use of scooters to only people with a documented disability, brought forward the perception that anticipated growth in the number of scooter users, may require an initiative to keep the number of scooter users lower, to prevent congestion in pedestrian environments. There may be room for all scooters at the moment, but with the anticipated growth of scooter users, “*it may be necessary to limit use only to people with disabilities.*” The counter argument to this is that imposing limits on scooter use in public areas only to individuals with mobility problems, will exclude other scooter users from using their scooters for transportation. As one stakeholder put it: “*If people have money to buy it – why prevent them from using it.*” With limited restrictions, the elderly may be able to use their scooter to live more independent and satisfying lives.

There was some agreement that individuals should not be prevented to buy or acquire a mobility scooter, it is only the “*use of mobility scooters in public areas like sidewalks*” that would be limited to individuals with a broadly defined mobility problem. However it was also argued : “*Why would you prevent someone who WANTS a scooter (if the person is fit to operate one) from buying and using it?*”

Stakeholders agree that the use of mobility scooters should not be regulated on private property. There are farmers in the area that may greatly benefit from using a mobility scooter to move around on their private farmland. There are bigger and faster scooters available that are suitable for use on for rougher terrain. Using a scooter on a private property may enable farm workers with some mobility problems to continue with their work.

Dangerous and impaired driving

Stakeholders confirmed that insurance companies and/or law enforcement agencies keep no data on incidents, accidents or collisions of scooters. Most information about scooter incidents is anecdotal. In Abbotsford it was reported by different stakeholders that two individuals on scooters were fatally injured during the past 5 years.

Scooters are not classified as motor vehicles but as pedestrians. As such, there are aspects of the road traffic legislation, which do not apply to scooter users, such as sections on dangerous driving and driving whilst under the influence of drugs or alcohol. Most stakeholders agree that scooter users should continue to be exempted from these requirements and that no change to the law is necessary at this time. However, it was widely recognized by stakeholders that scooter users are potentially capable of “dangerous driving and driving whilst under the influence of drugs or alcohol.”

The strongest argument against regulation in this regard presented by stakeholders is that scooter users are pedestrians and should be “*treated under the law*” as pedestrians. Stakeholders were divided in their perceptions of the potential of causing harm to self and others. Some stakeholders argued that since scooters travel at relatively low speeds, the potential to cause harm to self and others, is low in comparison with motor vehicles. Even when substances, including medication, impair the scooter driver, this poses a lower risk than driving a motor vehicle. It was argued that there exists only a minor possibility that a scooter driver may hit a pedestrian – “*because pedestrians are agile and can get out of the way.*”

Other stakeholders argue that scooter drivers can be “*dangerous drivers*” particularly when they are impaired by substances. This can pose a real risk to self and others. For example, a scooter driver could drive too fast or without care and attention in pedestrian environments like on a sidewalk or in shopping areas. This behavior can cause harm to other pedestrians. It was argued that not all pedestrians have the agility and ability to react quickly enough to avoid impact with a scooter. On the roads, when driving “*reckless and intoxicated*”, scooter drivers can fall or swerve into traffic. In this instance, motor vehicles may try to avoid impact with the scooter and cause major accidents.

Stakeholders agreed that a “*heavy handed regulatory approach*” to these issues might not be appropriate now. Law enforcement officers reported several incidents where they have dealt appropriately with impaired scooter drivers under the current regulations. For example, impaired scooter drivers can be removed from the road or sidewalk and be kept in custody for a short period. In these cases, police officers kept intoxicated scooter drivers until sober and released them. In other situations, family members were contacted to deal with the situation.

Based on the assumption that most scooter users are elderly individuals who may have chronic health conditions and use several medications, stakeholders agreed that scooter users must be educated and clearly warned not to drive their scooter under the influence of alcohol. Scooter users should also be educated to avoid operating their scooters when taking medication that may impair their driving ability. There was general agreement amongst stakeholders that a mobility scooter must be considered as “*a piece of heavy machinery*” when interpreting warnings for the use of medications.

Pedestrian environments

Stakeholders generally agreed that scooters should be allowed in all pedestrian environments and should follow all the rules established for pedestrian in a particular pedestrian environment. For example, in a park environment, it is clearly marked where pedestrians are allowed or not allowed. Scooter users must adhere to the same rules as pedestrians. Often pedestrian environments are perceived to be private property (e.g. inside malls and buildings). It was

suggested that formal regulations may not be appropriate and realistic in some pedestrian environments.

Stakeholders pointed out a number of issues for scooter users in pedestrian environments. Issues include the location of buttons to open automatic doors at mall entrances and the location of buttons on poles at crosswalks. It was also observed that some doors at malls do not stay open long enough to allow entrance of a scooter.

Several suggestions were made to improve safety for scooter users and unmotorised pedestrians (people on foot) in pedestrian environments. There was general support amongst stakeholders that a “code of ethics” or a “code of courtesy” should be developed for scooter users. A code of courtesy should include suggestions on how to act towards unmotorised pedestrians (e.g. for scooters to drive their scooter to the most far right portion of the sidewalk or footpath that is safe for scooter driver). Other suggestions include driving a scooter at a speed that mirrors the speed of surrounding unmotorised pedestrians, and the use of an appropriate warning system (e.g. bell, horn, or by calling out) to alert unmotorised pedestrians of the presence of the scooter or the intention to pass.

From a healthcare perspective, some stakeholders presented arguments regarding the expectations of scooter behavior in pedestrian environments. These environments are shared with a diverse range of unmotorised pedestrians including children and the frail elderly. Some elderly use assistive devices like canes or walkers. If these devices were to impact with a scooter, this could result in falls and fractures. Speed was perceived to be a major factor and scooter drivers must drive as slowly as possible. Low speed may minimize potential injury of an unmotorised pedestrian. As one stakeholder put it: “*Scooters must drive slower than the slowest person*”.

Parking lots were identified as a pedestrian environment that posed several safety issues for scooters. When backing out of a parking stall, motor vehicle drivers would find it difficult, or impossible, to see a scooter behind them. Using the pole with a flag certainly improves the visibility of a scooter. However, it is still difficult for drivers to spot a scooter in a parking lot.

It was also argued that the general public including vehicle drivers and unmotorised pedestrians, should be aware of the challenges and responsibilities of scooter users. It is not just scooter users who must be aware of the challenges and responsibilities. Urban planning and building codes should keep the needs of scooter users in mind. Even though scooter users are perceived to be pedestrians, they are pedestrians with special needs.

Registration and Insurance

Stakeholders had mixed reactions to the question of whether scooters must be registered or not. Stakeholders found it difficult to reconcile the concept of the scooter as a pedestrian, with the idea of registration of the scooter as a vehicle. There was general consensus that if a “faster scooter” is classified as a motor vehicle, and only allowed to operate on the road (not on the sidewalk) by a licensed driver, the “fast scooter” should be registered and insured.

Some stakeholders argued in favour of registration of “*slower scooters who operate on sidewalks*”. Registration information stored in a central location may be helpful in identifying stolen scooters, identifying scooter drivers in emergency situations, and keeping track of the number of scooters that are operation, in a certain area or community, for planning purposes and research. Arguments against registration of “slower scooters” include the notion that bicycles need not to be registered and bicycles operate mostly on the road and at higher speeds than “slow scooters”. The anticipated cost of a registration system and the difficulty with enforcement may make the registration of scooters less than feasible. Some stakeholders were of the opinion that registration may be feasible if it is connected to an insurance system for scooters.

Most stakeholders were in agreement that even “slow scooters” driven at a low speed have the potential to cause harm and injury to others, and therefore, the scooter driver may be legally responsible. The majority of stakeholders strongly recommend that scooter drivers must have liability insurance when operating a scooter. Some stakeholders argued that a person does not need any form of insurance as a pedestrian or even as a bicycle operator, when bicycles travel at much higher speeds than even the fastest scooter.

Most scooter vendors reported that they advise customers to contact the household content insurance company to discuss their insurance needs. There appear to be several differences between insurance companies in this regard. Some policies cover replacement of the scooter (due to fire, theft or damage) and include liability insurance. However, this is not the case for all policies. It is the responsibility of the scooter drivers to familiarize themselves with the insurance coverage they may have under their household content insurance, and to determine their own insurance needs. Scooter users also need to clarify the conditions of the coverage. For example, some scooters are only covered when stolen or damaged inside the user’s residence and are not covered outside the home.

There was agreement amongst stakeholders that insurance must not be mandatory for theft, fire, and damage for scooters operated at lower speed. Perceptions about mandatory liability insurance for slower operating scooters were mixed. Some stakeholders suggested that liability insurance must be mandatory and should be paid for by the government when scooter drivers are unable to afford liability insurance.

3.2.2 Responsibility of the industry

There were a high level of agreement amongst stakeholders that the scooter industry and providers do not have a legal responsibility towards the scooter user in terms of determining scooter driver fitness and driver training. The industry however does have a social and moral responsibility to refuse to sell or discourage a sale to a prospective scooter buyer with clear and obvious inabilities to operate a scooter safely.

Five scooter providers in the area were individually interviewed for this study. Without exception, all of them clearly indicated that even though they are not formally trained to provide assessment of scooter fitness, if a prospective buyer’s fitness is questioned, the provider will encourage the person to consult with their physician and or other healthcare provider (e.g.

occupational therapist or physiotherapist) prior to the final purchase. Vendors see it as their responsibility to provide as much possible information to prospective buyers and their families about the products (e.g. scooters). Prospective drivers are given the opportunity to test drive different types of scooters on the premises, parking lots and nearby sidewalks. Buyers are also allowed to test drive a scooter in their natural home environment, before making a final decision to purchase it.

Vendors in this study state that they do not engage in any form of formal assessment when dealing with a prospective scooter purchase. Vendors do however make important observations of how the prospective scooter driver presents her or himself. Aspects that are observed include the person ability to hear and follow instructions, problems with balance and tremors, ability to read the information on the panel of the scooter and/or to read the registration plate of a parked car. In some cases, the vendor would also engage in a discussion with family members about the possible challenges the buyer may experience with a scooter. If the vendor has reservations about the fitness of the prospective buyer to operate a scooter, the vendor will “*gently refuse*” to sell the scooter and encourage the buyer to consult with a healthcare professional first. Vendors reported that they have lost sales because the prospective buyer was not willing to consult with a healthcare professional first. The buyer may purchase a scooter anyway from a vendor out of town, or buy a used scooter privately.

It should also be kept in mind that not all scooter users acquire their scooters from a scooter vendor. Scooters can be purchased online from “*basically any place in the country*”. Used scooters can also be purchased privately through newspaper classified advertisements and word-of-mouth advertising from strangers, acquaintances, and friends.

Vendors also reported that they perceive it to be an important part of their function to provide “*on the spot*”, basic training. Prospective buyers will be provided with basic instruction on how to operate a scooter safely and some “*hands-on*” instruction when taken out for a test drive. The instruction focuses on basic maneuvering, the rules of the road, and maintenance. Usually this initial training is only provided to first-time buyers.

3.2.3 Scooter driver assessment and testing

One of the central issues addressed in this research study was whether any change is desirable to the current situation -- whereby there are no minimum standards for an individual’s fitness to operate a scooter or power wheelchair. The importance of this issue was underlined by the information that many first purchasers of scooters are prompted to do so by the circumstances that cause them to no longer feel that they can drive a car safely, or they may be deemed unfit to drive a motor vehicle. The use of a mobility scooter may become the only other alternative.

Questions posed to stakeholders around scooter driver fitness, sparked the most reaction and comments from stakeholders. There was consensus amongst stakeholders that scooter drivers, even when classified, as “pedestrians”, must be fit to operate a scooter in public spaces e.g. on sidewalks, roads and other pedestrian areas. Stakeholders did not necessarily agreed with each other on whether scooter drivers must be formally assessed, tested, granted a “scooter driver’s license” and the indicators of scooter driver’s fitness.

The majority of stakeholders agreed that there is a need for scooter drivers to be assessed and tested to determine their levels of fitness to operate a scooter safely. This is not only necessary for the protection of scooter drivers themselves, but also for the safety of unmotorised pedestrians and motor vehicles drivers.

It was argued that there is a difference between a scooter as a “pedestrian” and an “unmotorised pedestrian.” For example, an unmotorised pedestrian may be able to walk safely with poor eyesight. A scooter driver with poor eyesight may be more of a danger to self and others. The stability of a scooter when negotiating a curb is more crucial than for an unmotorised pedestrian.

Some stakeholders propose a different assessment system for drivers who operate faster scooters than for the drivers who only operate as pedestrians, and mainly on the sidewalk at lower speeds. There was consensus amongst one group of stakeholders that when a driver operates a scooter at a higher speed on the road, the driver should have the same level of fitness compared to what is expected to drive a motor vehicle on public roads. It was suggested that the basic criteria must be the same for all scooter users, with “*enhanced criteria*” for when they drive faster and primarily on the road. A counter argument was presented that slower scooters that operate as pedestrians on sidewalks, are also forced to be on the road. These slower scooters need to be on the road when there is no sidewalk and need to cross the road from sidewalk to sidewalk. From this perspective, there should not be differentiation between the operation of a slower or faster scooter.

There were arguments against assessment and testing of scooter drivers’ fitness. A small group of stakeholders argued against scooter driver assessment, testing and the notion of a driver’s license for a scooter driver. Scooter drivers are legally pedestrians and this group of stakeholders perceived a scooter as an extension of the human body. There is no requirement of pedestrians to prove that she/he is fit to operate in pedestrian environments or on the road. Therefore, no requirement should be made of scooter drivers.

It was also argued that cyclists are not required to prove their fitness to operate a bicycle or a motor assisted cycle on the road with the capability of speeds in excess of 30kph. It was suggested that potential speed of bicycles exceeded those of scooters, and constitute a greater hazard. At the same time, cyclists are not subjected to any minimum fitness standards, or eye-sight tests. It may be considered discriminatory to impose a “*fitness to drive*” criteria on scooter users and at the same time allow cyclist to operate with no such restrictions.

A fear was articulated that if a driver’s test system is introduced for scooter users, a considerable number of scooter users would, in an attempt to avoid the testing procedure and avoid the “*stigma of failing the test*”, cease to use their mobility devices. This might lead to further reduction of mobility levels of people with disabilities (of all ages) and to further isolation.

It was also argued “*risk is a part of life*”. Thus it was suggested that scooter users, as well as society at large, need to understand that in order to maintain mobility, freedom and independence, a certain level of risk need to be expected and accepted. As one stakeholder put it, “*cars kill more people in Canada than guns, but we have not banned cars.*” Therefore, it was

suggested that society should accept a certain level of risk and allow adult scooter users to choose a level of risk they are comfortable with.

It was suggested that from a law enforcement point of view, aspects of a drivers license for scooter drivers would be difficult to enforce. Driver fitness of scooter drivers was also perceived to be less of a concern for law enforcement officers in comparison with the issues around motor vehicle driver fitness. *“It is difficult enough to get unfit car drivers off the road – we know that cars are heavier and go much faster than mobility scooters. Cars are so much more dangerous when operated by an unfit car driver.”*

Indicators of fitness

Stakeholders in favour of an assessment testing and a scooter driver’s license agreed that there should be at least minimum standards for fitness to drive and that these should be the subject of assessment. The assessment could include an eyesight test, assessment of cognition or judgment. Stakeholders agreed that the assessment of scooter drivers should include an assessment of vision, hearing, reflexes and reaction time, judgment and cognition, medications taken, ability to maneuver the scooter, and previous motor vehicle driving experience.

Vision was perceived to be one of the most critical dimensions of a scooter driver’s fitness. Vision should be sufficient to protect personal safety and the safety of pedestrians. It was suggested that the key requirements for vision include the ability to see the curb edge and to see the approaching traffic when crossing the road. It was suggested that using the current *“acuity standard”* to obtain a motor vehicle driver’s license might be unreasonable. It was suggested that a scooter driver must be able to read a vehicle license plate at half the distance required for a motor vehicle driver. It was also argued that scooter drivers might be able to compensate for visual problems. This might be the case, when the scooter driver has the cognitive ability and still has good judgment to plan, and develop a compensation strategy. Scooter drivers need appropriate depth perception and peripheral vision to be able to recognize obstacles and other pedestrians. Assessing the user’s vision was regarded as essential and should be compulsory.

Hearing and hearing impairment is also a dimension of the fitness of the scooter driver. Hearing must be sufficient to be able to detect warnings on the street and sidewalk. If wearing a hearing aid, it must be in working condition. While hearing was considered important, vision was perceived as more important by most stakeholders.

Stakeholders who work in the healthcare field especially expressed concerns about the cognitive abilities of scooter drivers. Several examples were given of scooter drivers with cognitive deficits that manifest in impaired memory and judgment. Concerns were expressed about the increase of people with dementia whose car drivers’ licenses are revoked, and who acquire a scooter. Good judgment is perceived to be a crucial element to safe scooter driving. It was suggested that scooter drivers with poor memory and impaired judgment pose a major safety risk to themselves and others. For example, it was reported that a scooter driver was found driving on the freeway with the intention to go to a neighboring town (40 km away) to visit a friend. This was perceived to be a significant risk to both the scooter driver and to other motor vehicle drivers.

Some stakeholders emphasized that the most important dimension of scooter fitness is the scooter driver's ability to appropriately and safely maneuver the scooter indoors (e.g. a mall or shopping area), outdoors on the sidewalk, crossing the road, negotiating curb cuts and ramps, dealing appropriately with unmotorised pedestrians and driving safely on the road. It is the actual performance on the scooter that is crucial and a road test for a scooter user is strongly recommended. Some stakeholders held the opinion that previous driving experience is needed to safely operate a scooter. However, several other stakeholders indicated that even if scooter drivers had never driven a car before, most of them master the new skills of driving a scooter. The overall perception is that previous car driving experience is not necessarily an indicator of the fitness of a scooter driver.

Stakeholders were divided in their perception of whether the same level of drivers' fitness is required for operating a scooter than a motor vehicle. Some hold the view that scooter drivers must have the same level of fitness than car drivers. Most stakeholders have the perspective that there are substantial differences in the requirements to safely operate a scooter and a motor car. Arguments include the suggestion that a motor vehicle, in comparison with a scooter, is much heavier and is driven at much higher speeds. The potential of a car to cause harm to self and others, is much greater than that of a scooter. It was argued that any standard of fitness to use a scooter should be less rigorous than for driving a car.

Several stakeholders suggested that there should be similar fitness to drive requirements as to driving a car. These arguments emphasized that there are little difference between what is required to operate a scooter and a motor vehicle. Vision problems like blurred vision, tunnel vision, and loss of peripheral vision are all conditions that negatively affect the fitness of scooter and car drivers alike. Both car and scooter drivers need good eyesight, hearing, ability to turn head/body to shoulder check, operate hand controls, some upper body strength, and cognitive ability.

There was some consensus amongst stakeholders that scooter drivers can "*get away with little bit less*" in capacity because on a scooter "*the world is smaller*" and a scooter moves slower. Scooter drivers still require good peripheral vision and the ability to detect movement on sidewalks and to make adjustments in speed and direction.

Stakeholders agreed that a scooter driver's family physician may be the most accessible to do a "*first line assessment*." Occupational therapist and physiotherapist have the knowledge and skill base to undertake a thorough assessment of scooter driver fitness. It was also suggested that a collaborative approach to assessing fitness should be used. In addition to the health care professionals, the team should also include family, friends and caregivers.

It was suggested that further work should be done on devising a simple "*fitness to drive assessment*". Such a testing system would, at a minimum, include a vision test, ability to control the vehicle and a measure of cognitive and judgment abilities. Work should be started to devise a simple fitness-to-drive assessment, which would include an eyesight test, ability to control the vehicle test, and a measure of cognitive / judgment abilities.

Mandatory or voluntary assessment

Stakeholders debated the question whether assessment of scooter driver fitness should be mandatory or voluntary. Assessment of scooter fitness is required in cases where the scooter driver seeks government funding. Most stakeholders argued that assessment should not be mandatory, but scooter drivers should be strongly encouraged to be assessed prior to acquiring a scooter. Because of the changing needs and capabilities of particularly older scooter users, some stakeholders emphasized the importance of re-evaluation or re-assessment. Suggestions included a re-assessment every two years or when the scooter is involved in an incident related to her/his scooter driving.

Stakeholders envision a procedure that could be put in place to facilitate a broader scooter assessment process. This process can consist of the following steps:

1. Determine person's need for a mobility scooter.
2. Assessment of driver fitness that will include a cognitive assessment, medication review, and a road test.

3.2.4 Scooter driver Training

There was a high level of agreement amongst stakeholders that scooter driver training is essential for scooter users. Stakeholders were however, divided as to whether training should be mandatory or voluntary. Stakeholders commented on the content and format of training for scooter users. There was strong agreement amongst stakeholders that scooter training should not only focus on current scooter users, but also include potential scooter users. The ideal would be for potential scooter users to take some form of initial training before they make the decision to acquire a scooter.

Stakeholders agreed that the focus of scooter training should be "*the development of knowledge and skills*". Scooter drivers must know certain information and should be able to demonstrate certain skills. Training content for scooter users must include the following:

1. Safe operation of the scooter.
2. Regulations and "rules of the road" for scooters as pedestrians. Information should include a warning that a scooter can be "dangerous to pedestrians" with the potential to injure an unmotorised pedestrian. Users should know that they are "civilly responsible" for the damage they cause.
3. Information about the need and types of insurance for scooter users.
4. Understanding of the different pedestrian environments. Scooter drivers should be trained to control speed and adjust speed accordingly to what is safe for a particular pedestrian environment. They need to be trained to "dial down" the scooter to a speed that is appropriate for the particular environment. Speed regulation in pedestrian environments is seen to be a crucial element of safe scooter operation.
5. Scooter maintenance and storage. This should include information on battery and tire care.
6. Medication use and the safe operation of a scooter.
7. "Code of Courtesy" that will capture the essence of good scooter driving behavior and scooter driving etiquette.

6. Practical components that should include basic safe maneuvering of the scooter. These skills should include critical maneuvers like driving on inclines, crossing the road, and safe parking.

Different formats for scooter users training were suggested including longer training courses to day or half day workshops. It was further suggested that training material must be developed and made available for scooter users in different formats (e.g. written manuals, shorter brochures, and electronically on the internet). Training material should accommodate the needs of scooter users and potential users who have trouble reading because of vision problem, low literacy levels, or language difficulties. Awareness about mobility scooters can be enhanced by incorporating a discussion of the topic at community events (e.g. symposia on aging and disability, health and wellness fairs, and other educational events in the community). Stakeholders recognize the important role of scooter suppliers or vendors in the initial training of scooter users. Vendors should be encouraged to continue to provide as much initial training to scooter users as is practically possible.

Some stakeholders are of opinion that even scooter drivers diagnosed with “*early stage dementia*” still have the capability to learn with repetition. Scooter education may be helpful to scooter users with documented cognitive challenges.

It was recommended that scooter training should be easily accessible for scooter users. Community groups that provide services to seniors and people with disabilities, are usually experienced in coordination of education programs, and have a familiarity with the learning styles of the particular group. Stakeholders emphasized affordability of training and where possible, training should be provided to scooter users free of charge.

Most stakeholders argued that basic scooter user training should not be mandatory. However, scooter users and potential users should be strongly encouraged to take basic scooter training courses and to continue to update their knowledge and skills by attending refresher courses. It was suggested that a monetary incentive could be given to scooter drivers who participate in training (e.g. give trained scooter users discounts on insurance premiums for their scooters). It was suggested that family members could be encouraged to motivate a scooter user or potential users to participate in scooter training. Some stakeholders favoured mandatory scooter training. This small group argued that the scooter driver would be required to undergo basic safety training just as safety training would be suggested when a person acquires a firearms or intends to operate a powerboat. It was also recommended that the general motor vehicle drivers as well as cyclists be educated about mobility scooters on the roads and how to safely share the road with scooters.

3.2.5 Other issues

Several stakeholders brought issues forward around the importance of developing and maintaining a context for scooter drivers, in order for them to operate scooters in a safe way. Suggestions to what a “scooter friendly community” might look like point mainly to the condition of the infrastructure and further development of infrastructure and building codes that will ensure accessibility and safe scooter operation. The importance of providing transportation

alternatives was emphasized by several stakeholders. It is important to provide and maintain a range of alternatives for people with disabilities of all ages.

Stakeholders reported extensively on the width and conditions of sidewalks in the communities included in this study. It was reported that the minimum width requirement for sidewalks is 1.5 meters with some enhanced sidewalks in commercial areas with a width of 2.5 meters. With the anticipation of an increase of scooter use and with the trend to develop “*walkable communities*”, it was suggested that local governments plan to create and maintain a context that will make it easier and safer for pedestrians, including scooters, to move around. It was suggested that local governments need to ensure adequate sidewalk width to accommodate scooters and pedestrians moving around each other: “*the wider the better.*” This refers to multi-family developments as well as commercial areas. Several stakeholders commented on the lack of sidewalks in residential areas and that utility poles on sidewalks make it difficult for scooter users to navigate sidewalks. Several comments were made about the lack of curb cuts and the angle that makes scooter driving difficult and sometimes unsafe.

An implication for the municipality is that city planners will need to anticipate higher scooter and pedestrian use in certain areas and plan accordingly. Communities will need to have zoning bylaws that will promote appropriate scooter routes in the communities – especially in areas where there is a higher concentration of scooter users (e.g. around retirement communities, seniors centers and health care facilities). Some stakeholders suggested that local governments should consider developing lanes for scooters (e.g. similar to bicycle lanes) as part of infrastructure for a community. Local governments should start to create “scooter friendly communities.”

Frequently used scooter routes should be targeted for the development of infrastructure such as wider sidewalks and scooter friendly transit stops. Transit stops can be designed to have benches as well as under cover scooter parking. Scooter users would be able to maneuver in and be covered while waiting for transit. Clear rules will need to be established if scooters can access the inside of public facilities such as pools, recreational centers and libraries. Local and provincial governments will need to plan for the increase in scooter traffic and to establish standards for sidewalk widths and for external storage facilities.

It was reported that some scooter drivers find it difficult to find appropriate parking for their scooter. Local governments will need to encourage developers to provide parking areas specifically for scooters. Parking at public facilities like recreational centers must also be provided for scooters.

Stakeholders suggested that BC building codes need to be modified in order to be more responsive to the needs of scooter users. The following aspects should be considered:

- Width of elevators, hallways, and doorways;
- Electric outlets to provide safe and accessible charging points for scooters.
- Appropriate indoor and outdoor parking and storage spaces for scooters. Storage of scooters in hallways of apartments or on balconies may pose a safety risk when blocking access when a building needs to be evacuated in the case of an emergency. The weight of a scooter when stored on a balcony may be inappropriate for the structure.

- Commercial areas should be planned to accommodate the needs of scooter users. Attention should be paid to floor plans, washrooms, door access, and aisle width.

3.2.6. Principles and guidelines for decision making.

Throughout the consultations with stakeholders, several guidelines or principles were identified. Stakeholders emphasized that these principles should be considered when decisions about scooter users and scooter use are made.

- People should be “*the least motorized as possible*”. For example if a person can get around with a walker, she/he should not use a motorized device.
- The intention of using a mobility scooter is “*to assist an individual to maintain (approximately) the same level of mobility she/he enjoyed prior to the onset of your medical condition.*” A scooter is like a persons legs, and often their lifeline to society.
- Communities should prepare themselves for an increase in scooter use by working towards becoming walkable communities and “scooter friendly communities.”
- The best regulation is self regulation. Individuals’ rights to make own decisions must be protected and respected.
- Communities need some system of regulation for mobility scooter use. However, it is important to remember that scooters provide mobility to people and that should be tempered against the tendency to over-regulate. “*We do not want a system for scooter users where you need a paper for the paper.*” It was suggested that over-regulation will negatively affect the freedom and independence of seniors and people with disabilities.
- A system of regulation for scooters should be simple, uncomplicated, practical, affordable and enforceable.
- Training is more important than regulation. Education and common sense may be enough to start with. There does not necessarily need to be more regulation – training and voluntary compliance is the better route.
- A scooter must be considered as “*a piece of heavy machinery*” when interpreting warnings for the use of medications.
- No regulations for scooters should apply on private property.
- People with mobility problems face multiple barriers. It is important to be careful to consider if regulations and structures will create another barrier in place for people with disabilities.

3.3. The use of Scooters and Powered Wheelchairs

NOTE: In this report the term “scooter” refers to both “scooter type” and “powered wheelchair type” of devices, unless otherwise indicated.

3.3.1 Estimates

At the present time, it is not possible to provide an exact number of scooter users in the community. A formula was derived from estimates of scooter users in the United Kingdom that is 10% of wheelchair users are scooter users. Wheelchair users are estimated as 10% of adults with “locomotion problems” or mobility problems. The term “mobility problem” refers to difficulty walking, climbing stairs, carrying an object for a short distance, standing in line for 20 minutes or moving about from one room to another. (Barham et al., 2004; BC Stats, n.d.; Statistics Canada, 2001 a; Statistics Canada, 2001 b.)

The following formula was developed for use in this particular study of mobility scooters in the eastern Fraser Valley, British Columbia, Canada. The formula was not subjected to rigorous scientific scrutiny and should only be used to complete a “rough and conservative” estimation of the number scooter users in a particular community. The formula is: (Total population of age group) X (percentage of individuals in age group with mobility related disabilities) X 0.01.

Tables 3 to 7 illustrate the age categories of each of the communities involved in the study and the estimated number of scooter users in each category. (Barham et al., 2004; BC Stats, n.d.; Statistics Canada, 2001 a; Statistics Canada, 2001 b.) These tables represent conservative estimates and should be interpreted with caution. The age categories used are: young adults (19-44); the baby boomers (45-64); young-old (65-74); middle-old (75-84); and the old-old (85 and over) (Chappell, McDonald & Stones, 2008; Novak & Campbell, 2006).

Table 3: Estimated number of adult mobility scooters users in communities in the eastern Fraser Valley (Abbotsford, Chilliwack, Hope, District of Kent [Agassiz] and Mission).

Age group	Total Population in age group in Region	% Mobility-related disability	<i>Estimated number of people with mobility problems</i>	Estimated number Scooter users
19-44	98,269	3	2,948	29
45-64	65,676	13	8,537	85
65-74	19,155	23.3	4,463	45
75 – 84	13,605	39.5	5,375	54
85 +	4,825	57.7	2,784	28
TOTAL 19+	201,530		24,107	241

Table 4: Abbotsford

Age group	Total Population in age group Abbotsford	% Mobility-related disability	<i>Estimated number of people with mobility problems</i>	Estimated number Scooter users
19-44	50,170	3	1,505	15
45-64	30,179	13	3,923	39
65-74	8,409	23.3	1,959	20
75 – 84	6,476	39.5	2,558	26
85 +	2,455	57.7	1,416	14
TOTAL 19+	97,689		11,361	114

Table 5: Chilliwack

Age group	Total Population in age group	% Mobility-related disability	<i>Estimated number of people with mobility problems</i>	Estimated number Scooter users
19-44	27,840	3	835	8
45-64	19,855	13	2,581	26
65-74	6,601	23.3	1,538	15
75 – 84	4,705	39.5	1,853	19
85 +	1,545	57.7	891	9
TOTAL 19+	60,546		7,698	77

Table 6: Mission

Age group	Total Population in age group	% Mobility-related disability	<i>Estimated number of people with mobility problems</i>	Estimated number Scooter users
19-44	15,107	3	453	5
45-64	10,290	13	1,338	13
65-74	2,293	23.3	534	5
75 – 84	1,373	39.5	542	5
85 +	556	57.7	320	3
TOTAL 19+	29,619		3,187	31

Table 7: “Fraser Cascade” (Districts of Kent [Agassiz], Hope and Harrison Hot Springs)

Age group	Total Population in age group	% Mobility-related disability	<i>Estimated number of people with mobility problems</i>	Estimated number Scooter users
19-44	5,152	3	155	2
45-64	5,352	13	696	7
65-74	1,852	23.3	432	4
75 – 84	1,051	39.5	415	4
85 +	273	57.7	158	2
TOTAL 19+	13,680		1,856	19

(BC Stats, n.d.; Statistics Canada, 2001 a; Statistics Canada, 2001 b.)

The above tables indicated that based on the conservative estimates, the total number of scooter users in the Region could be around 250 to 300. Numbers for Abbotsford could be around 150, for Chilliwack 100, for Mission around 50 and for Hope, Agassiz and Harrison Hot Spring (combined) about 30 scooter users.

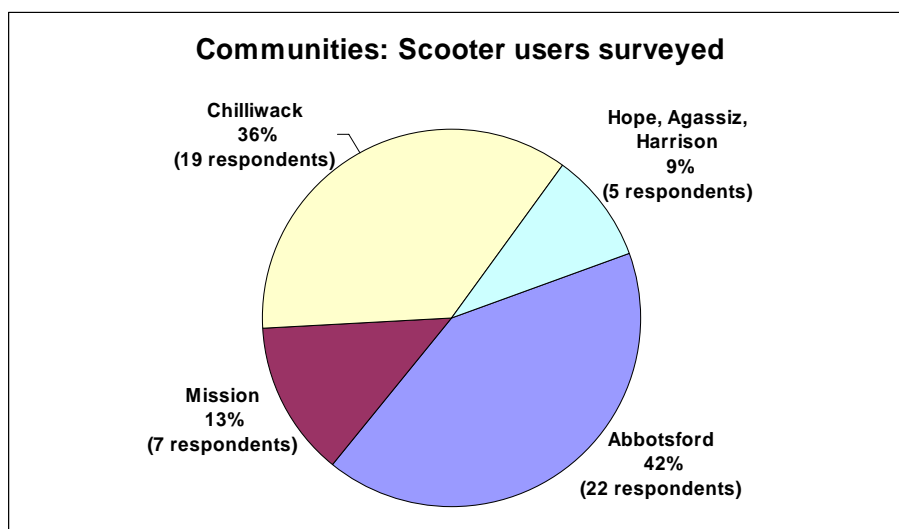
The tables also reflect the estimated number of people with mobility problems for the region and for individual communities. This numbers refer to individuals who experience difficulty walking, climbing stairs, carrying an object for a short distance, or standing in line. Not all of these individuals use or will use mobility scooters in the future and some of them will use other types of assistive devices like canes or walkers, including wheeled walkers. A portion of this group of people with mobility problems could be considered as potential mobility scooter users.

3.3.2 Demographic Profile of Scooter Users

Communities and type of housing

The survey of mobility scooter users was focused in an area commonly referred to as the eastern Fraser Valley and included the communities (districts) of Abbotsford, Chilliwack, Hope, District of Kent [Agassiz] and Mission. A total of 53 scooter users were interviewed and questionnaires completed. Figure 1 reflects the percentages of respondents in the communities.

Figure 1: Scooter users in communities



Seventy-seven percent of the scooter users surveyed, live in what can be described as urban areas, that is in, or close to what is typically referred to as a downtown area. Seventeen percent live in what is commonly referred to as the suburbs and 6% live on a small farm in what can be described in the context of the Fraser Valley as a rural area.

Close to half of the respondents (N= 24 or 45%) live in assisted living facilities. Three (5%) of the respondents live in nursing homes (see Figure 2). In a similar study in Denmark (Brandt,

Iwarsson & Stahle, 2004) it was found that 50% of scooter users lived in private homes, 13% in apartments, 34% in assisted living type of accommodation and 2% in nursing homes. It appears that the sample in the Fraser Valley has more respondents living in assisted living and less respondents living in private homes.

Figure 2: Living situation of scooter users

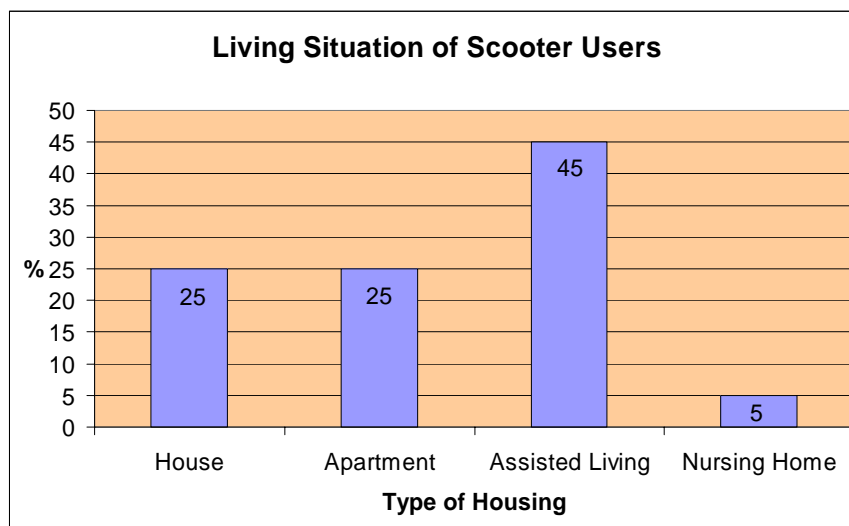
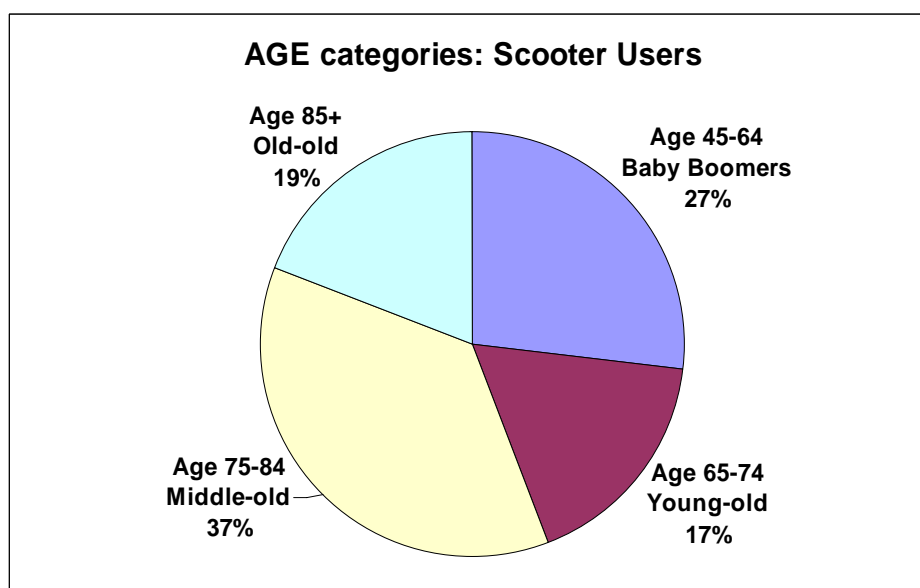


Figure 3 reveals that 4 in 10 (40%) of the scooter users in this study are younger than 74 years old. This group represents the younger group of seniors or "*becoming seniors*." About 6 in 10 (60%) scooter users in this study are older than 74 years. They are the group of people who were born in the 1930's and lived through World War II and have experienced tremendous changes in transportation technology.

Figure 3: Age distribution of scooter users in sample

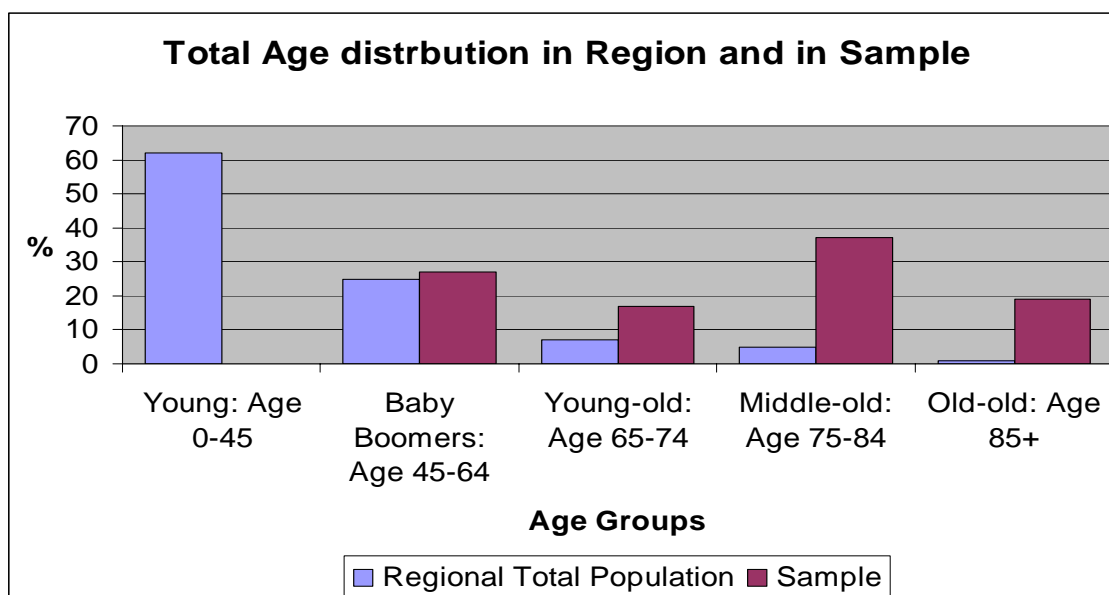


Age, gender and marital status

Sixty-four percent of the respondents were female and thirty-six percent were male. The average age of respondents is 75 years, with a median age of 77. The youngest person in the sample is 50 years old and the oldest is 95 years old. In a similar study in Denmark (Brandt et al., 2004), the average age of respondents was 77 (median age 76) with a range of 65 to 92 years.

Figure 4 indicates that the sample included proportionally more older adults than in the general population of the eastern Fraser Valley region (Abbotsford, Chilliwack, Hope, District of Kent and Mission). It appears that particularly the age group 75 and older was over-represented in the sample of scooter users.

Figure 4: Comparison: Age distribution in Region and in Sample of Scooter Users



The numbers of scooter users in age categories in this study were compared with the numbers of the population in the Region (communities in the eastern Fraser Valley (Abbotsford, Chilliwack, Hope, District of Kent [Agassiz] and Mission).

Table 8: Comparison: Number of scooter users in sample and number of estimated scooter users in the Region

Age groups*	Estimate	Sample
19-44 (young adults)	29	0
45-64 (baby boomers)	85	14

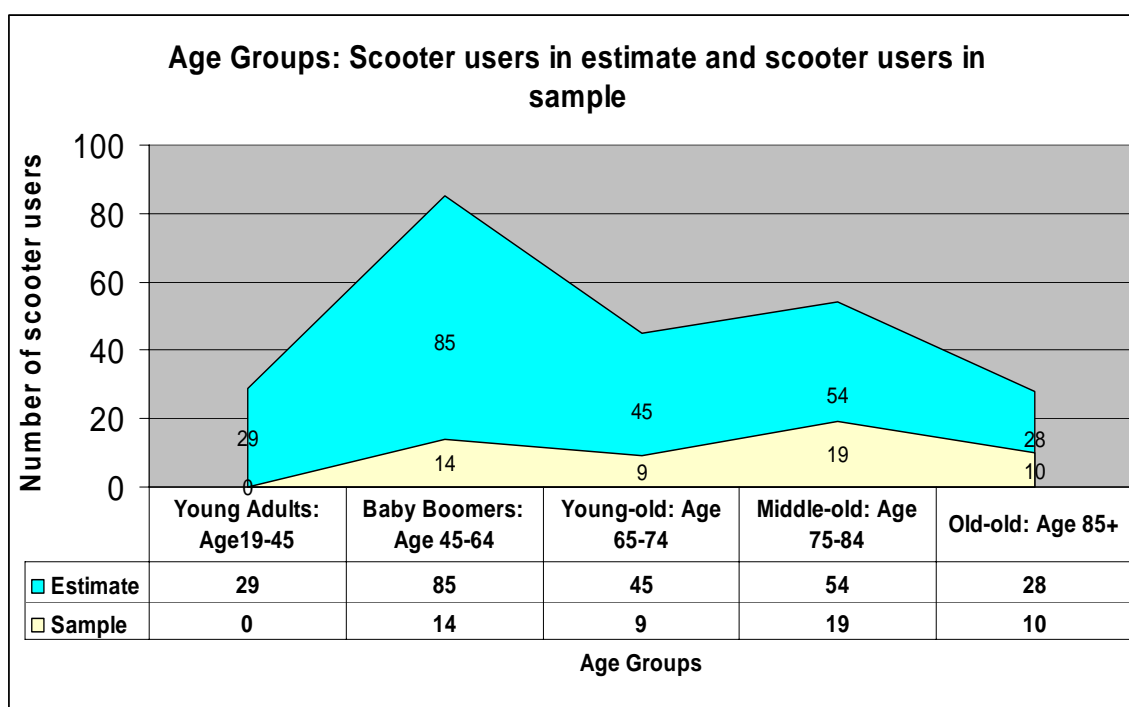
65-74 (young-old)	45	9
75 – 84 (middle-old)	54	19
85 and over (old-old)	28	10
TOTAL	241	52**

* Adapted from the Neugarten categorization of the elderly population (Chappell et al., 2008).

** One missing value

Table 8 and Figure 5 indicate that when the number of scooter users in this study (per age group) is compared with the estimates of scooter users, it shows a similar distribution curve.

Figure 5: Comparison: Number of scooter users in sample and regional estimates.



Most (two thirds) of the respondents (scooter users) were single. One in three of the respondents are married (see Figure 6). When compared with the general population, (see Figure 7) it appears that there is a much higher representation of single people (i.e. widowed, never married and divorced) in the sample than in the general population (Chappell et al., 2008). Marital status is an important determinant of quality of life in the later years. Research shows that married seniors are healthier and live longer their single age peers, widows are poorer than elderly married women (Chappell et al., 2008). Further it is important to keep in mind that about two thirds of the respondents in this sample of scooter users are females.

Figure 6: Marital Status of Scooter Users

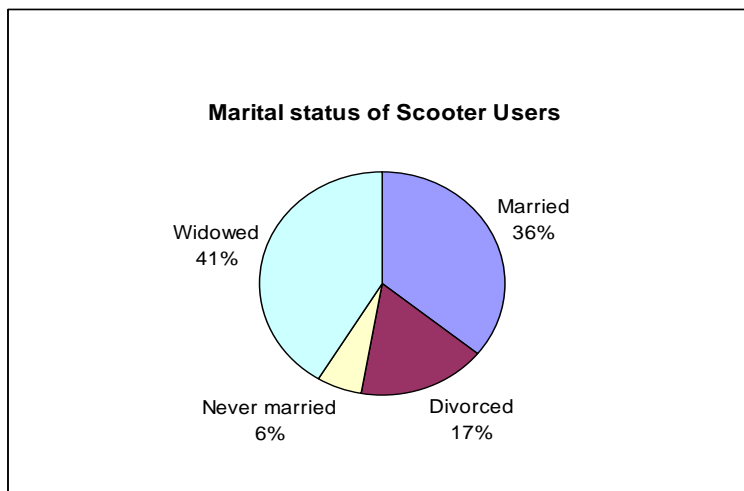
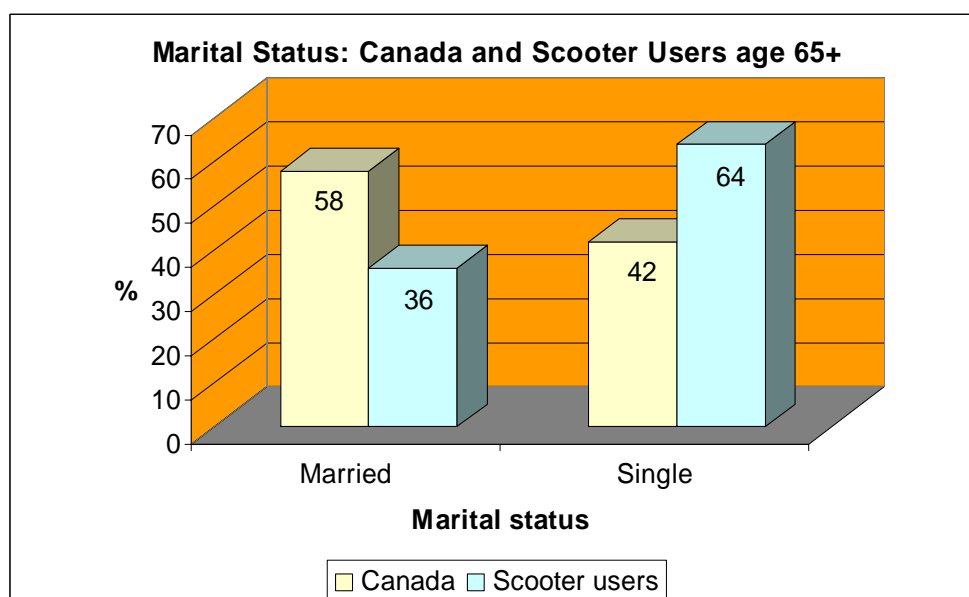


Figure 7: Marital status of Canadian seniors and scooter users

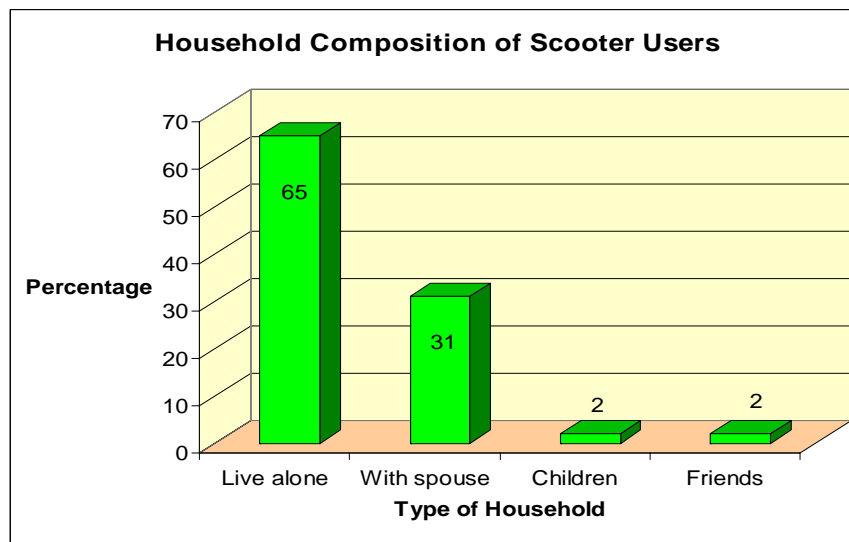


Sixty-five percent of the scooter users surveyed indicated that they live alone. About a third (31%) live with their spouses. One respondent live with her/children and one lives with friends (see Figure 8). This finding is similar to a study in Denmark (Brandt et al., 2004) where it was found that 69% of scooter users lives alone.

It should be pointed out that in this study in the Fraser Valley, respondents who live in assisted living facilities, indicated and perceive themselves to be living alone. Residents in assisted living could be described as tenants because they all live in separate suites. However they usually receive some services (e.g. meals and housekeeping. For the residents of an assisted living

complex the term living alone should be interpreted within the context of an assisted living setting,

Figure 8: Household composition of scooter users



Education, language ability, income and employment

Figure 9 Indicates that the majority (87%) of respondents have a high school or higher level of education. One in 4 has completed a degree. When compared with levels of education for the same age group (45 years and older) in British Columbia (Statistics Canada, n.d.) it appears that with minor differences the sample mirrors the provincial education profile for this age group (see Figure10).

Figure 9: Level of education of Scooter users

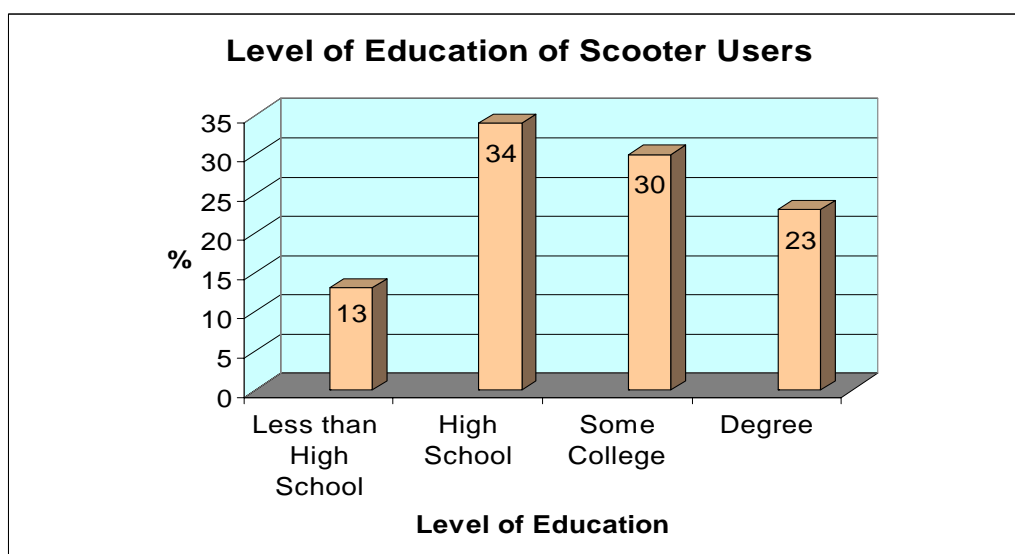
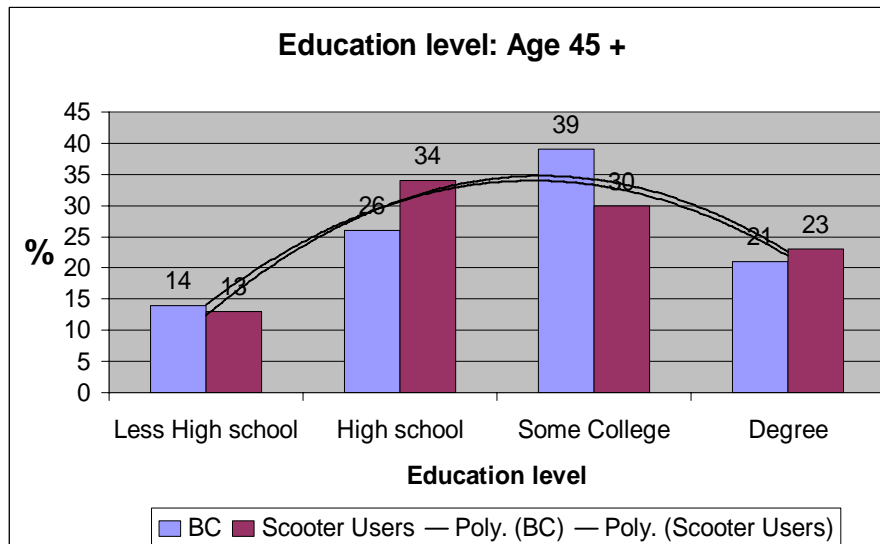
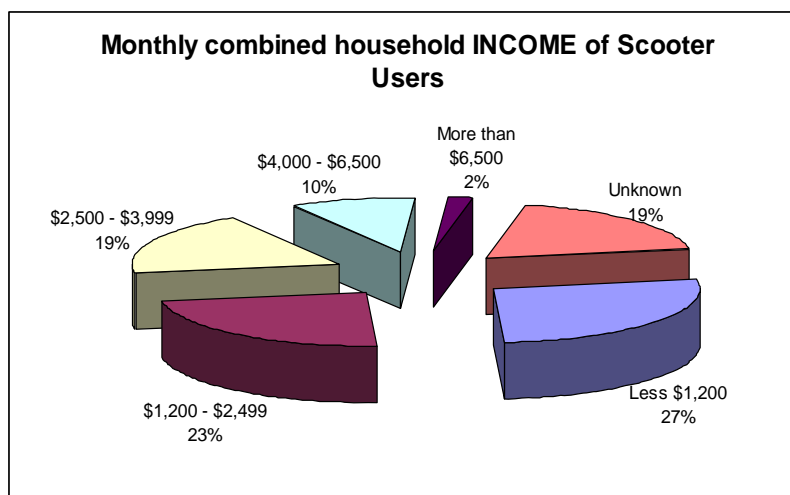


Figure10: Comparison: Level of education in BC and Scooter users in sample



The findings about respondents' income levels (see Figure 11) should be interpreted with caution. Ten of the respondents refused to disclose their income levels. Fourteen respondents (27%) can be considered as low income with an income of less than \$1,200 per month. Of the single respondents (n=34), twelve respondents (about one third) indicated that their income is less than \$1,200 per month. Two married respondents indicated that their combined monthly income is less than \$1,200 per month. Ten single respondents and 6 married respondents indicated that their income is above \$2,500 per month. It appears that at least 14 (one in four) respondents have low income levels. Sixteen respondents (about one in three) reported higher income levels (monthly income of more than \$2,500). Analysis of the income levels of only the respondents who are 65 years and older, reveals that 10% of that group are in the lower income group. This finding is more congruent with the national low income of 6% for low income seniors (National Advisory Council on Aging, 2006).

Figure 11: Income of Scooter Users



Of the “baby boomer” group (age 45 – 64), 10 respondents (71%) out of the fourteen reported low-income levels. Further analysis of these 10 respondents reveals that 8 of them have received financial assistance to buy their scooters. Six respondents received financial assistance from a government ministry and two respondents received financial assistance from family members.

Seventy-five percent of scooter users identify English as their first language. One in five scooter users in this sample indicated that German is their first language. When asked if the respondents have difficulty reading and understanding documents written in English, the majority (91%) indicated they have no problem. Nine percent indicated that they have difficulty reading documents in English.

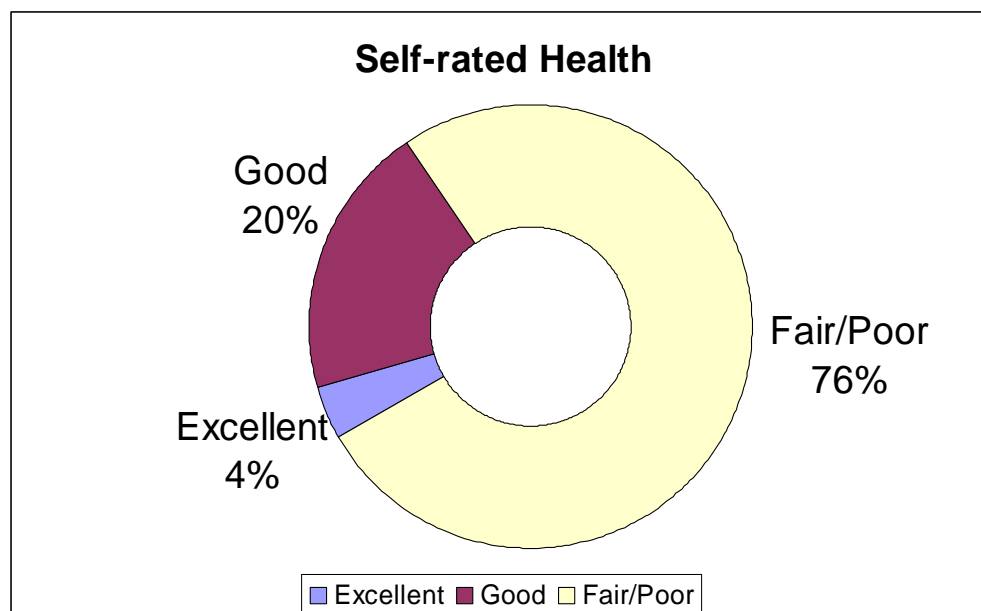
Forty-three percent of the scooter users indicated that their most recent employment was in the professional category. The rest indicated their most recent employment was in the category of industry (36%), homemaker (9%), clerical (8%) and other (4%).

Scooter users’ health

Respondents were asked to rate their own state of health (self-reported health).

Figure 12 indicates that three in four of the scooter users perceive their own health to be fair or poor (not good). Few of the scooter users rated their own health excellent, while the majority sees their own health to be poor.

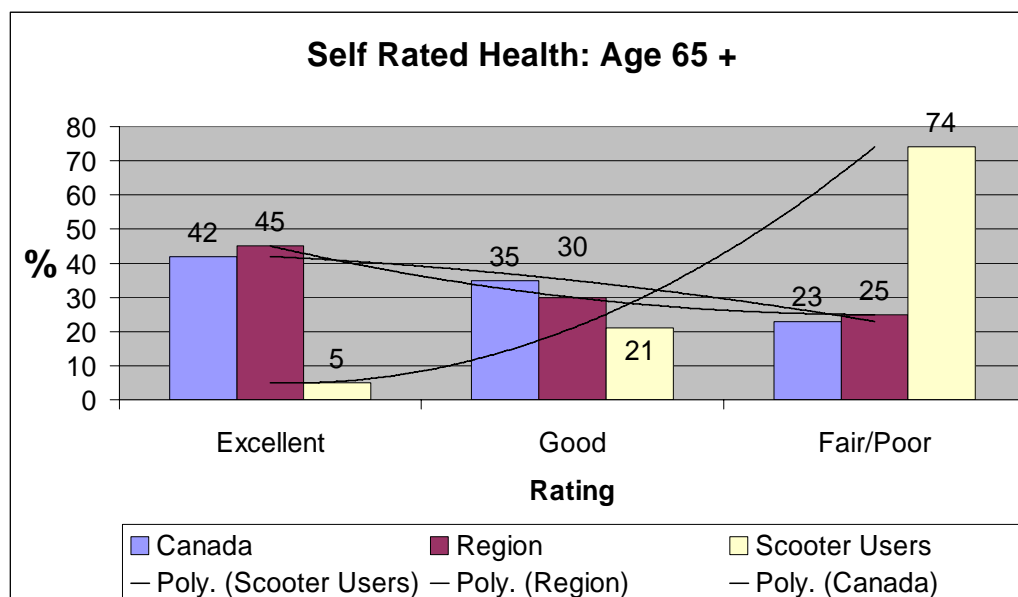
Figure12: Self-rated (self-reported) health of scooter users



Further analysis and comparison reveals that there is a difference in how seniors rate their own health nationally and in the Fraser Valley region (Health Canada, 2001; Statistics Canada, 2005) when compared with how the scooter users in the sample rated their own health. Figure 13

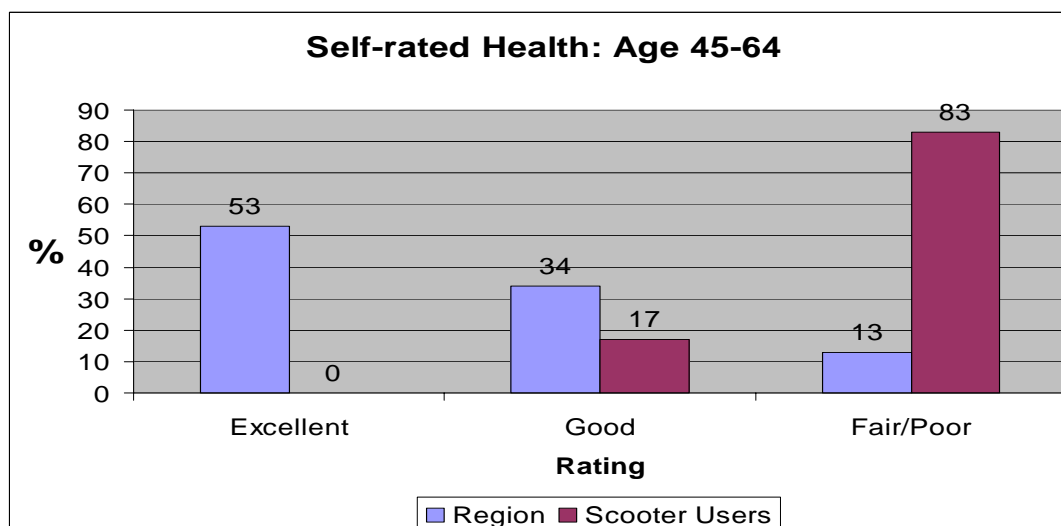
indicates that an opposite trend exists for self rated health on regional and national levels. It appears that there is a significant difference in how scooter users rate their own health when compared with the general senior population in the region and the country (Statistics Canada, 2005). Whereas about a quarter of seniors nationally and regionally rate their own health as fair/poor, three quarters (74%) of scooter users in this sample rated their health as fair/poor.

Figure13: Seniors ratings of own health: Nationally, regionally and scooter users



When comparing the age group 45-64 of scooter users with the same age group in the regional population, the differences are even stronger (see Figure 14) (Statistics Canada, 2005). Most (83%) of the scooter users (age 45-54) indicated that their health is fair/poor, while only 13% of the same age group in the regional population rate their own health as fair/poor.

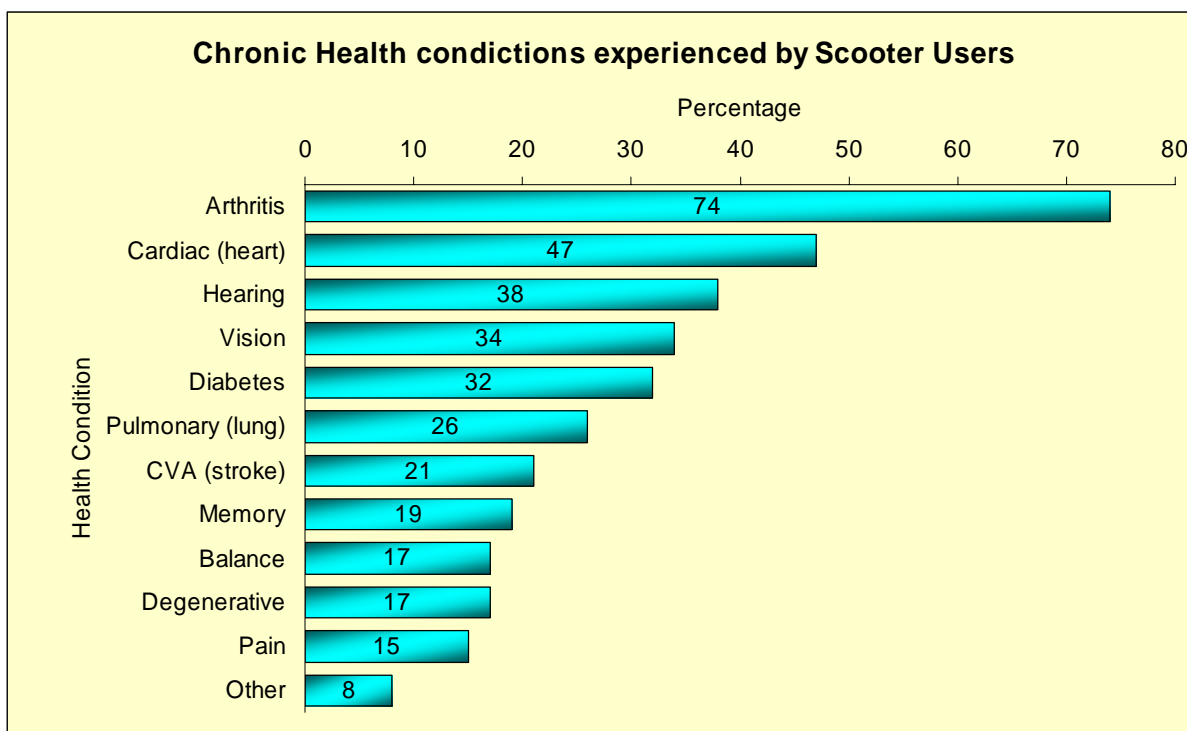
Figure14: Baby boomers ratings of own health: Regionally and scooter users



The data in Figure 15 suggests that three out of four scooter users suffer from arthritis, and about half of the scooter users experience heart problems. About one third of scooter users experience hearing and/or vision problems. One in five scooter users experienced a stroke and or suffer from memory problems.

If the scooter users who suffer from the painful condition of arthritis are combined with the group that suffers from chronic pain (not related to arthritis), the data suggests that close to 90% scooter users experience some level of pain.

Figure15: Prevalence of chronic health conditions in scooter users



Further analysis of scooter users with vision problems reveals that 72% of the group who identified having vision problems, are able to read a newspaper without difficulty. One in four (28%) of scooter users who identified having vision problems, indicated that they have great difficulty reading, or are unable to read a newspaper.

When the prevalence of chronic diseases in this scooter user group is compared with the prevalence of chronic conditions in the same age group in the Canadian population some differences emerge (Gilmore and Park, 2006; Statistics Canada, 2001 b; Statistics Canada, 2007). Figure 16 reveals that the prevalence of all the chronic diseases measure is higher in scooter users. Heart, lung and hearing problems and diabetes appears to be double what it is in the national population. Stroke and memory related problems appear to be four time as high in the group of scooter users.

Figure16: Comparison: Chronic health conditions in Canada and in scooter users

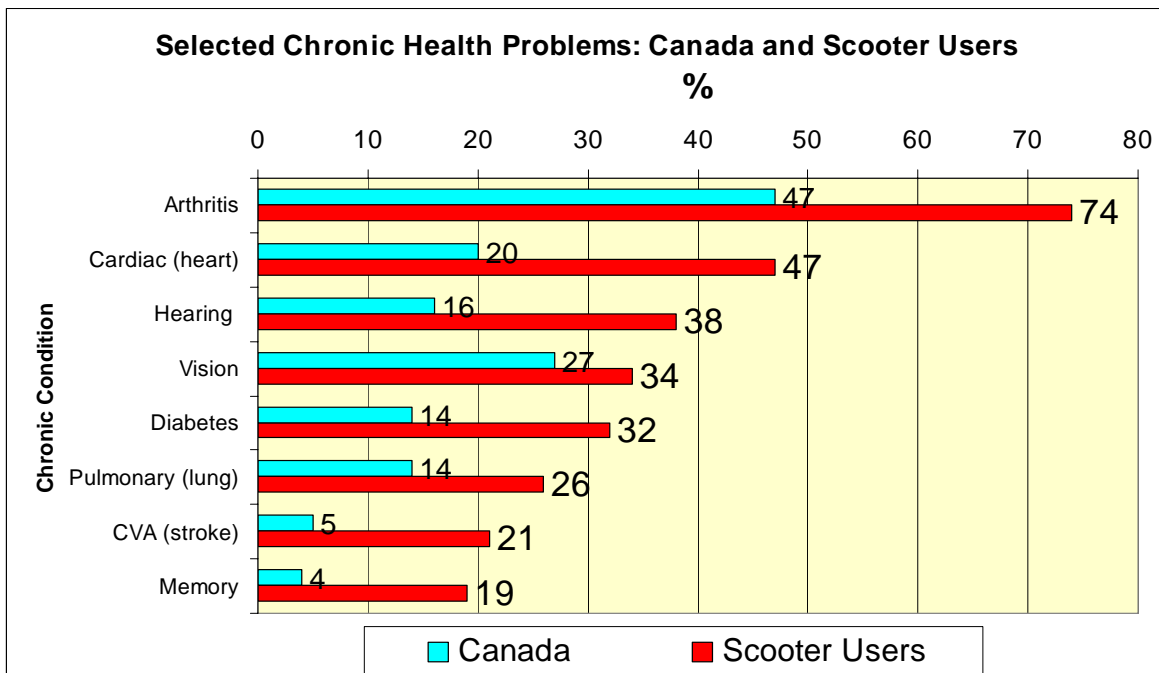
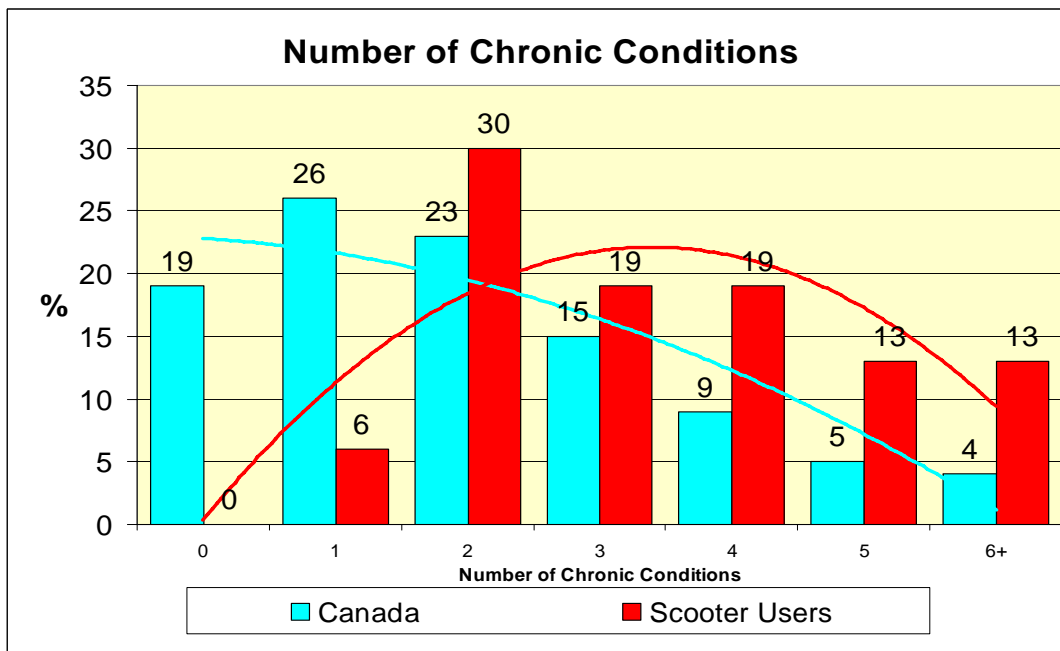


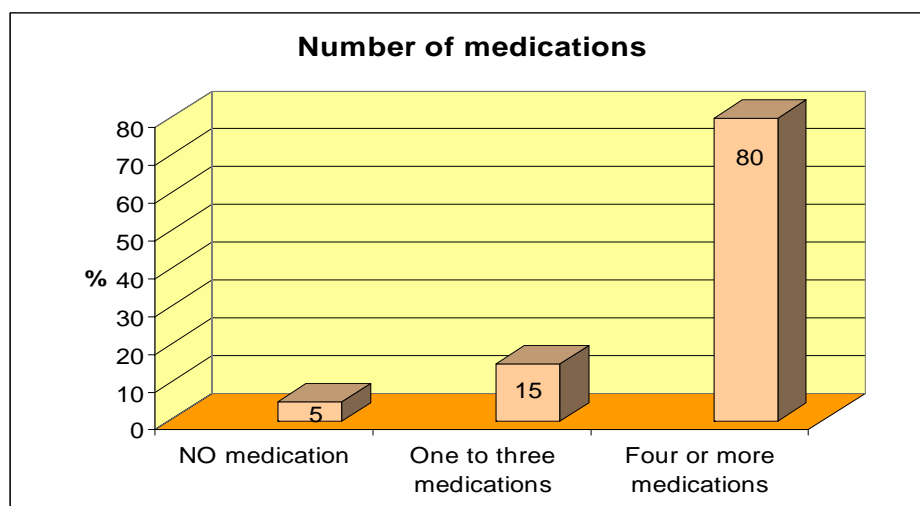
Figure 17 provides an comparative analysis of the number of chronic health conditions experienced by scooter users and the general Canadian population (Gilmore and Park, 2006; Statistics Canada, 2007). Scooter users experience more chronic health conditions per person than the general population of the same age group.

Figure17: Number of chronic conditions



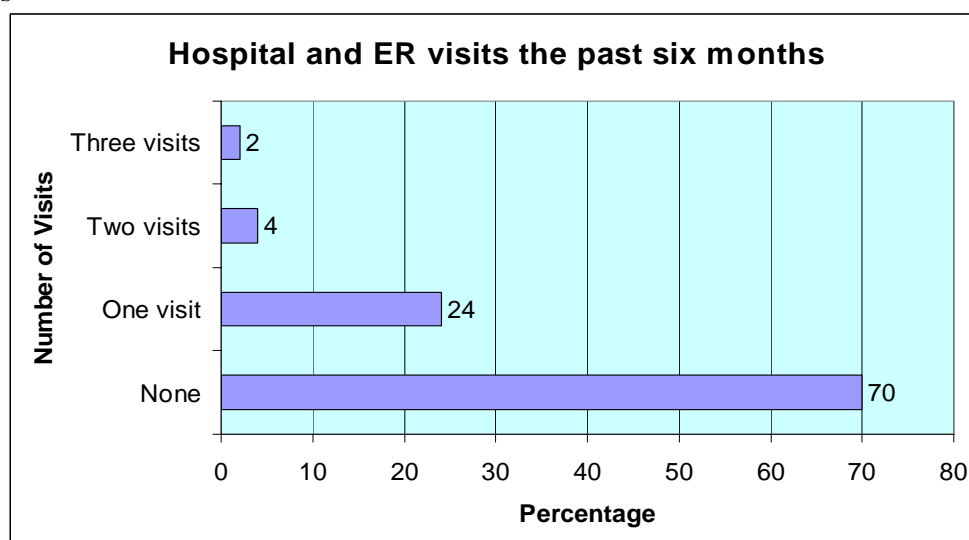
The majority (80%) of scooter users use four or more medications per day (see Figure 18). Only a third or seniors (36%) nationally use four or more medications per day (Rotermann, 2006). It appears that a significantly higher proportion of scooter users use four or more medications per day and that medication management and medication interaction may be a larger issue for scooter users than for non-scooter users.

Figure 18: Number of different medications (prescription and over the counter) taken



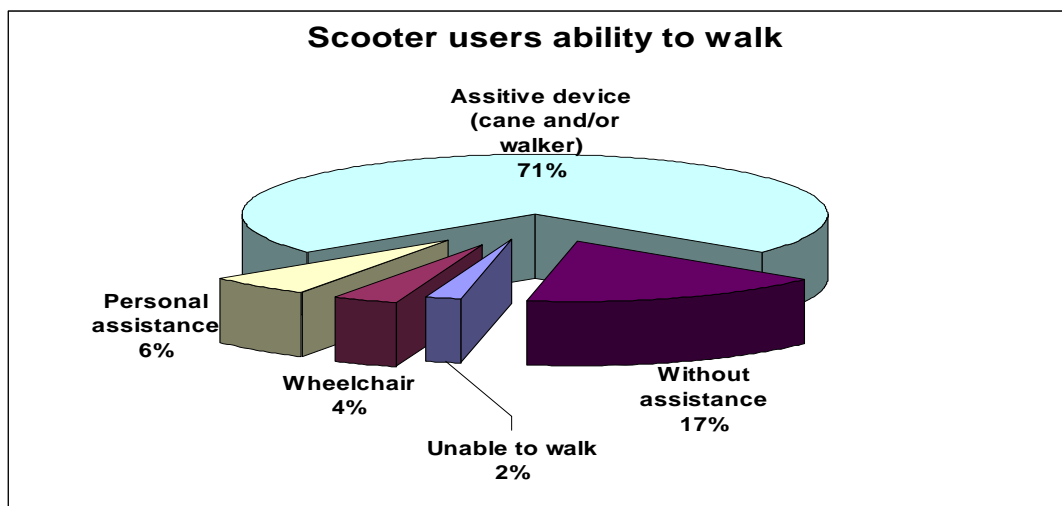
Thirty percent of the scooter users in the sample visit the hospital in the past six months (see Figure 19). The provincial figure for the same age group is 14% who visit the hospital the past 12 months ((Rotermann, 2006). It appears that the scooter users visited the hospital more often than people of their age group in the community. This can also be expected because of the scooter users' high prevalence of chronic health conditions.

Figure 19: The number of visits by scooter users to Hospital or Emergency Room (ER) the past six months



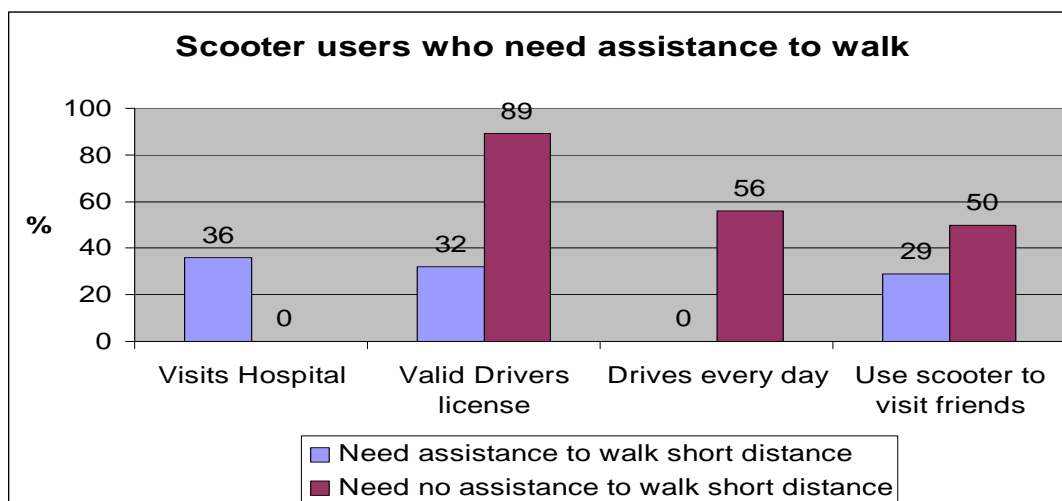
The majority of the scooter users (83%) experience problems with walking and need some form of human and/or mechanical assistance. Nine (17%) scooter users indicated that they can walk shorter distances without assistance (see Figure 20). In a similar study in Denmark (Brandt et al., 2004), one third of the respondents were unable to walk at all, and 15% were able to walk short distances without assistance.

Figure 20: Ability to walk



Further analysis of the group that can walk shorter distances, reveals some differences with the group that is unable to walk (see Figure 21). None of the respondents in the group who were able to walk went to hospital during the past six months, most of them (89%) have valid drivers licenses, half of them (56%) drive their cars every day. None of the respondents who need assistance to walk drives their cars every day. It also appears that the group who can walk short distances, use their scooters more to visit friends and family than the group of scooter users who are unable to walk short distances (see Figure 21).

Figure 21: Characteristic of scooter users with different levels of mobility

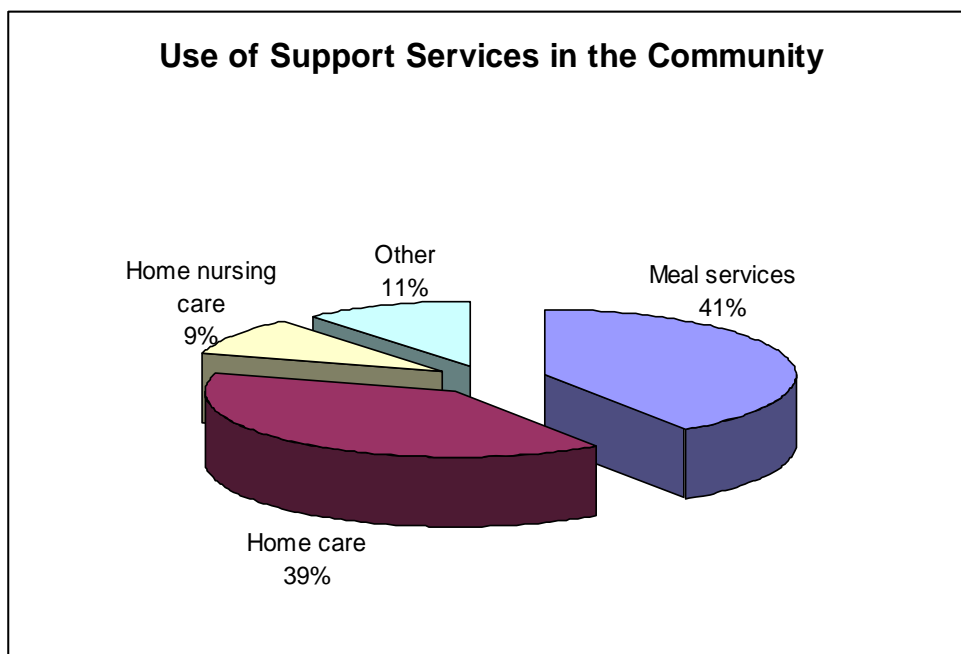


When asked about their ability to transfer to and from a scooter without help from others, the majority (96%) of scooter users do not find it difficult to transfer to and from their scooters.

When asked to describe their visual functioning, the majority of respondents (89%) indicated that they experience no problems reading a newspaper. Ten percent indicated that they experienced great difficulty in reading a newspaper. One scooter user indicated that she/he could not read a newspaper at all. About 12% of users can be described as having impaired visual functioning. This finding is similar to that of a Danish study (Brandt et al., 2004) where it was found that 16% of scooter users have impaired visual functioning.

When asked what services in the community they use, (see Figure 22) 41 % of the respondents indicated that they use meal services and 39% indicated that they use “home care”, usually in the form of house cleaning services. This is congruent with the earlier finding that 45% of the respondents live in assisted living facilities where these services are normally provided.

Figure 22: Scooter users use of support services

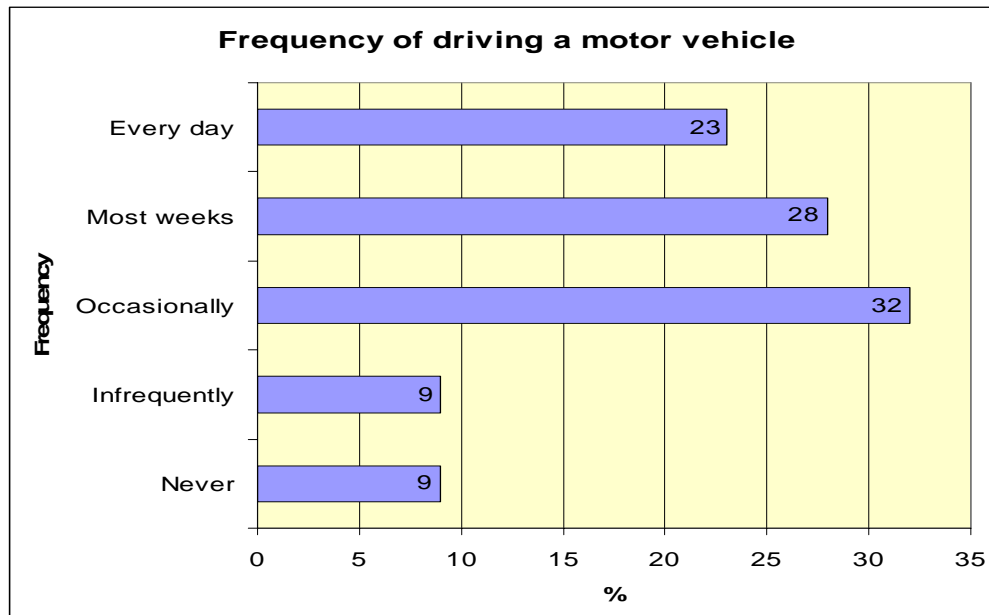


Motor vehicle driving

Respondents were asked if they still hold a valid driver’s license, and if they do, how often they still drive a motor vehicle. Forty two percent (n= 22) of the respondents still hold a valid driver’s license. Twenty respondents (38%) still drive their cars. This appears to be higher when compared with a similar study in Denmark (Brandt et al., 2004) where it was found that only 14% of the scooter users still drive their cars.

Figure 23 indicates that more than half (51%) of respondents with valid drivers licenses still drive on a daily or weekly basis.

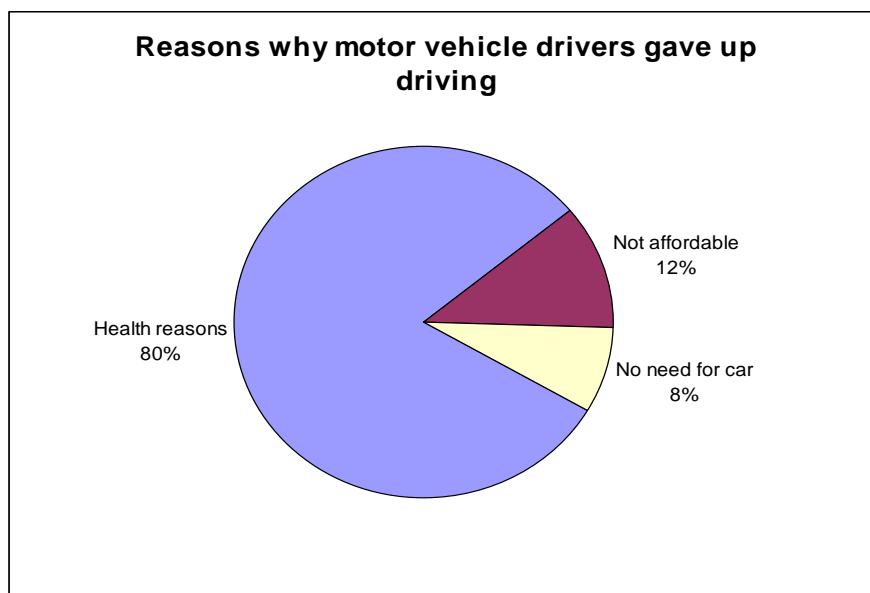
Figure 23: Driving a motor vehicle



Close to half (47%) of the respondents indicated that they were former motor vehicle drivers, but do no longer drive. Fifteen percent of respondent have not driven a car before.

Figure 24 reflects the reasons for driving cessation. The majority (80%) of the scooter users indicated that they stopped driving because of health reasons.

Figure 24: Reasons for giving up car driving

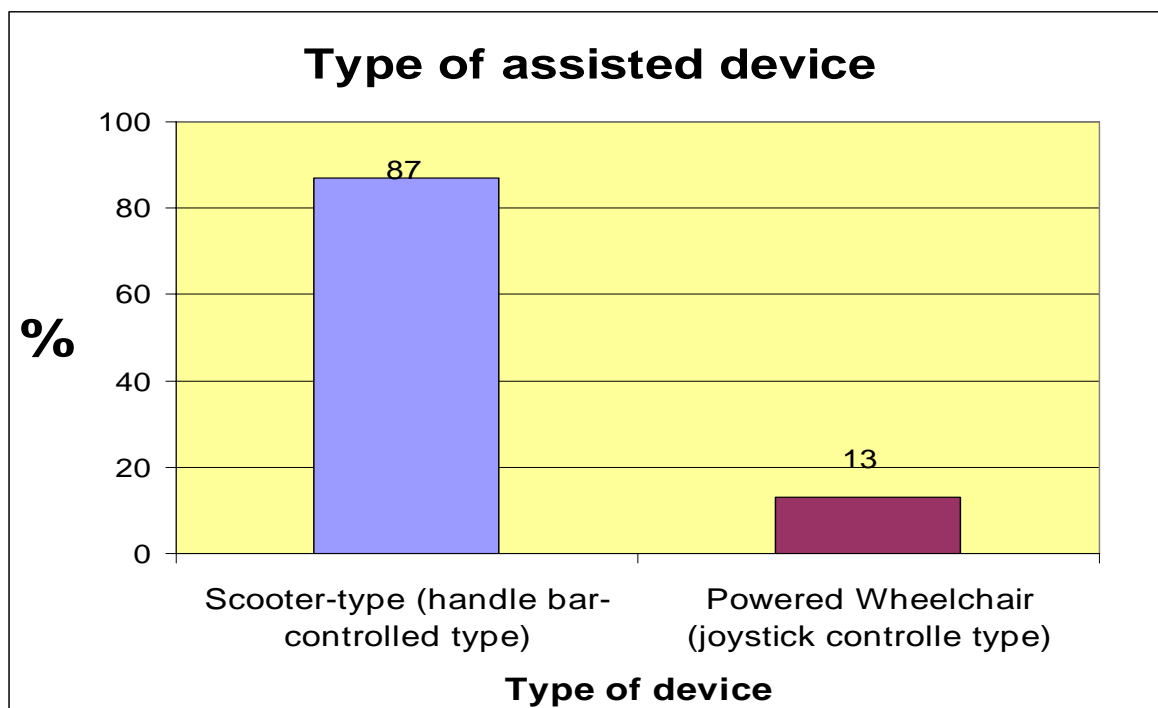


3.3.3 Scooter types, characteristics and acquisition

Type of scooter used

The majority of respondents (87%) used scooter type devices that are manually controlled by handlebars. Seven (13%) of the respondents use powered (electric) wheelchairs, and these are controlled by a joystick (see Figure 25). In this report, the term “scooter” refers to both “scooter type” and “powered wheelchair type” of devices, unless otherwise indicated.

Figure 25: Type of assisted device

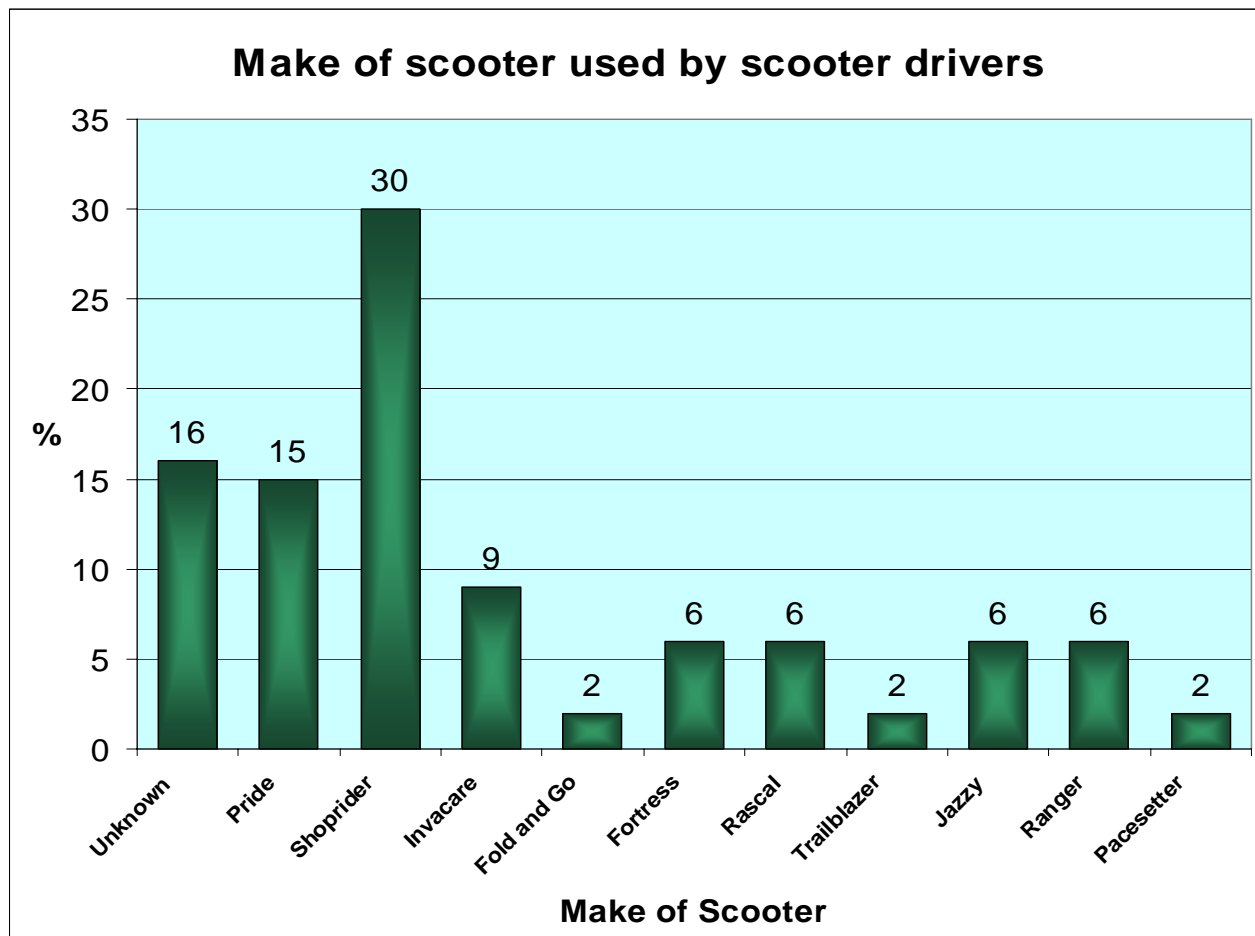


When asked what made them decide to use a scooter, the majority of scooter users (87%) indicated that the main reason for their decision was the onset of medical problems that impacted their ability to walk. The desire to be independent and to have more freedom to move around in the community was singled out as a major factor in their decision to acquire a powered wheelchair or scooter.

When asked about the make of their scooter, 13% of the respondents did not know or could not remember, at the time of the interview, what the make of her/his scooter was.

Figure 26 reflects that the Pride and Shoprider brands appear to be the brands most used by the scooter users in this study.

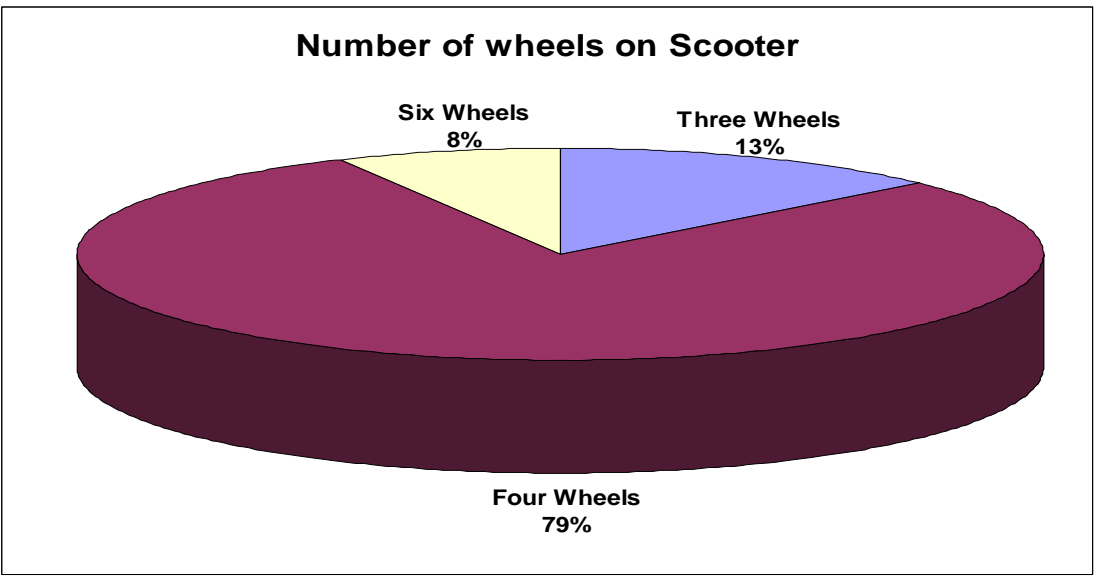
Figure 26: Makes of scooter used by respondents



Half (51%) of the scooter users owned a scooter before the current one. The other half had not owned a scooter before. The 27 scooter users who owned a scooter before their current one, were asked when they had acquired their first scooter. On average this group of scooter users acquires their first scooters about 5-6 years ago. The longest time was 17 years ago and the shortest time when a first scooter was bought was one year ago.

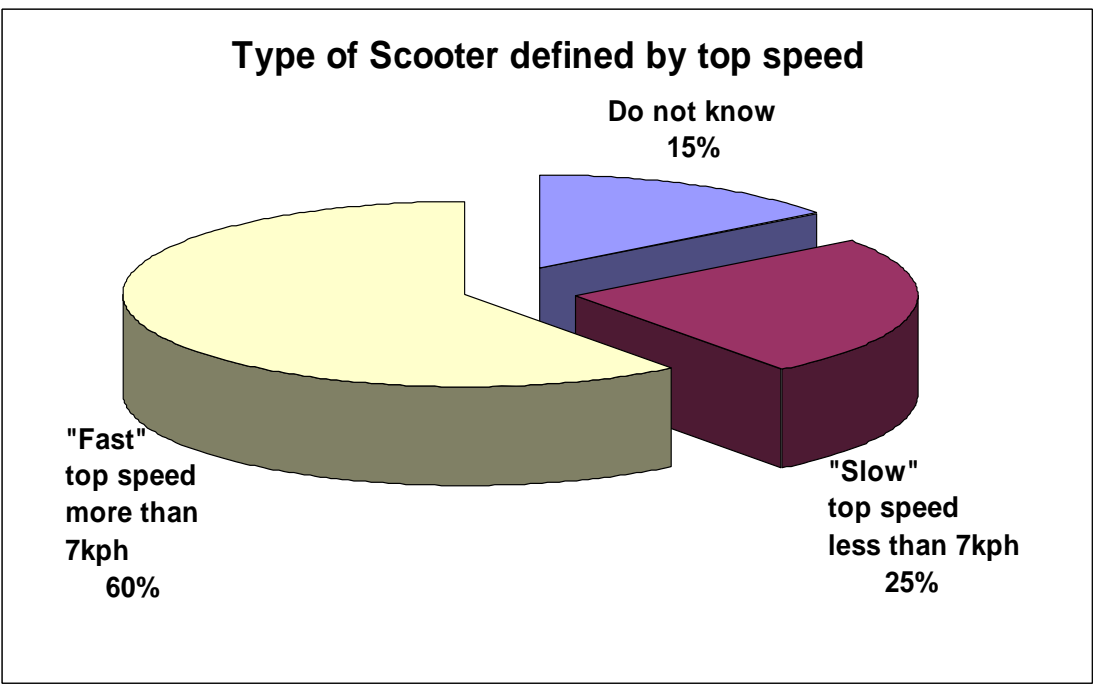
The majority (79%) of the scooters used by respondents has four wheels. The six wheel scooter usually refers to a four wheel scooter with two smaller wheels to increase stability. Only seven (13%) of the scooter users use three wheel scooters. Figure 27 reflects that the four wheel scooters are clearly the most popular.

Figure 27: Number of wheels on scooter



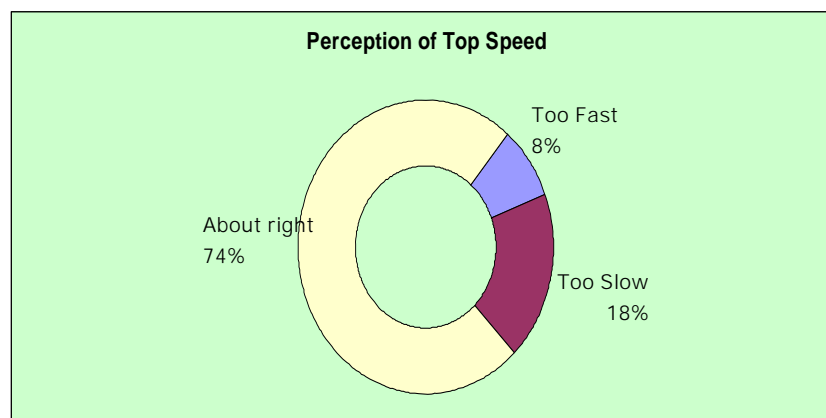
When asked what the top speed of their scooter is, 15% of scooter users were not aware or could not remember what the top speed was. Figure 28 indicates that most (60%) of the respondents reported that their scooters are capable of a top speed of more than 7kph.

Figure 28: Type of scooter defined by top speed



Most respondents (74%) indicated that they perceived the top speed of their scooter as “*about right*”. Nine (18%) of respondent thought that their scooters are “*too slow*” (see Figure 29). Further analysis of these nine respondents indicate that 8 of them actually drive the faster scooter (capable of a top speed faster than 7kph.).

Figure 29: Scooter users’ perception of the speed of their scooters



Eleven scooter users (21 %) indicated that they have modified their current scooters from the original. Figure 30 indicates what type of modification has been made. Most scooter users (42%) made modifications in order to protect them from the elements like wind and rain. About a third (33%) added baskets or cane holders to assist them with walking and shopping. Some scooter users (1 in 4) who made modification to their scooters, removed the “anti-tip wheels”. These users indicated that they do not perceive the removal of the anti-tipping wheels to compromise their safety and claim the removal of the wheels makes for a more comfortable and less bumpy ride on the scooter.

Figure 30: Modifications made to Scooter

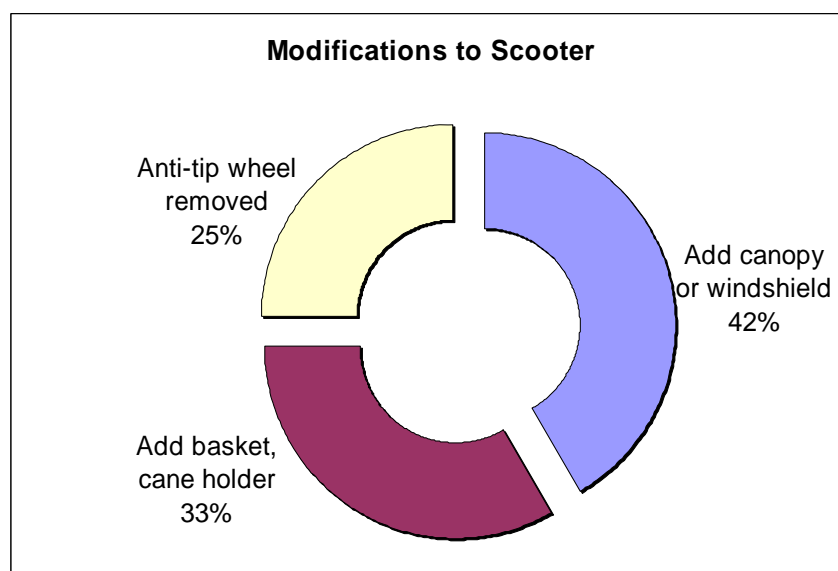
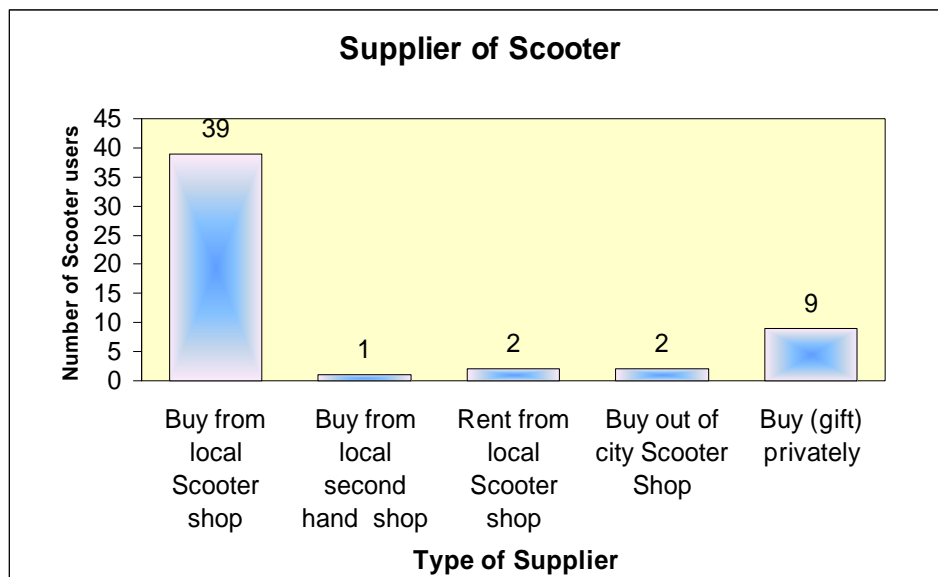


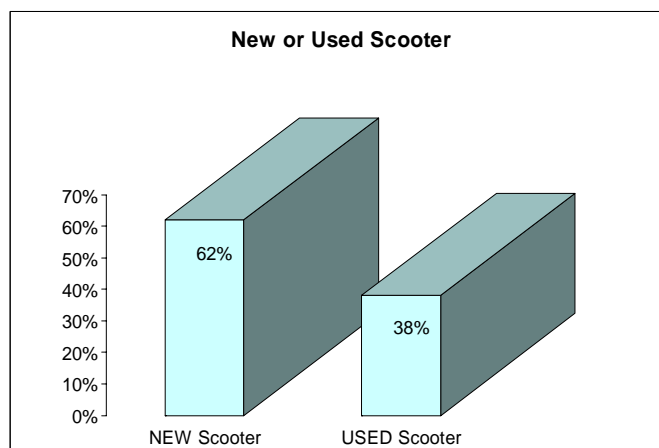
Figure 31 explains the different ways in which scooter users acquired their scooters. Most (74%) of the scooter users bought their scooter from a local vendor, and only two respondents bought their scooters from a retailer out of town. Nine (17%) users acquired their scooters privately from other scooter users or their families.

Figure 31: Types of scooter suppliers



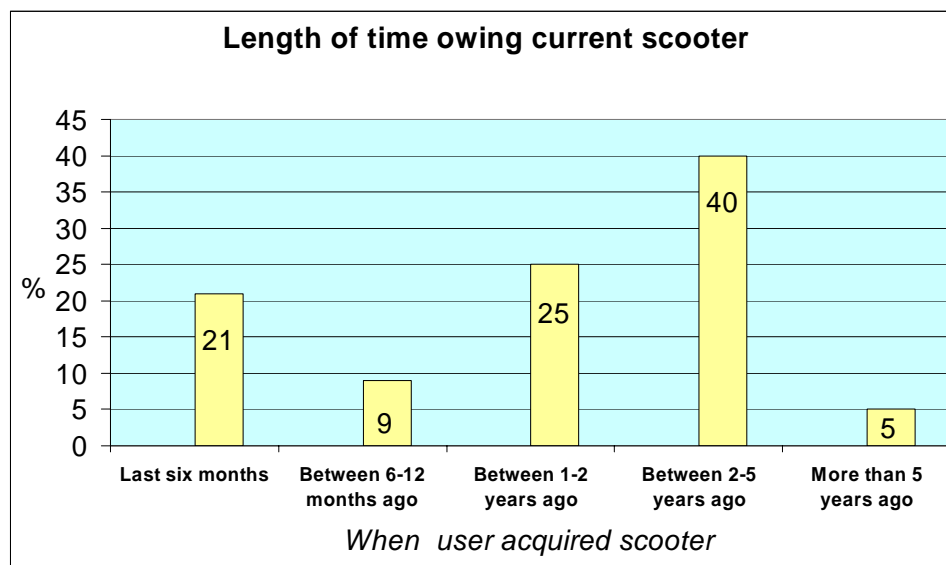
Data indicates that not all scooter users acquire new scooters. Figure 32 indicates that more than a third (38%) of the respondents acquired used (second-hand) scooters. This confirms the anecdotal evidence that not all scooters are acquired new from mobility scooter dealers. In a similar study in the UK (Barham et al., 2004) it was found that 88% of respondents in the UK study acquired their scooters new, with only 12% indicated that they acquired used scooters. It appears that there is a much higher incidence in the Fraser Valley of acquiring used (second-hand) scooters.

Figure 32: Acquire new or used scooter



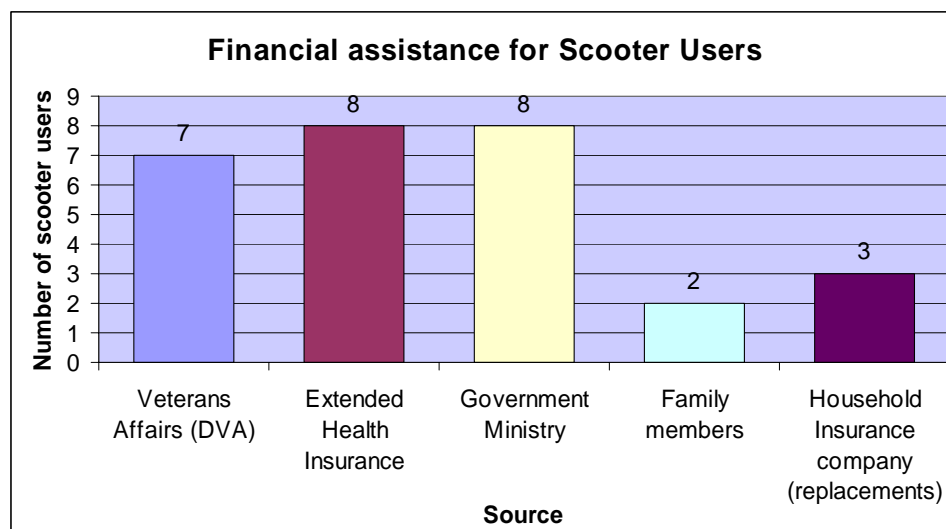
Scooter users indicated (see Figure 33) that most of them (70%) had their current scooter for more than a year. About a third (30%) of respondents own their current scooter for less than a year.

Figure 33: Length of time owning current scooter



More than half (54%) or 28 of the respondents indicated that they have received financial assistance to acquire their scooters. Figure 34 provides information on the sources of financial assistance for the 28 scooter users. Half of the scooter users (15 or 54%) who received financial assistance, received assistance from government agencies (e.g. Veterans Affairs or other government ministries). Eight scooter users received financial assistance from their extended health plans.

Figure 34: Source of financial assistance to acquire scooter

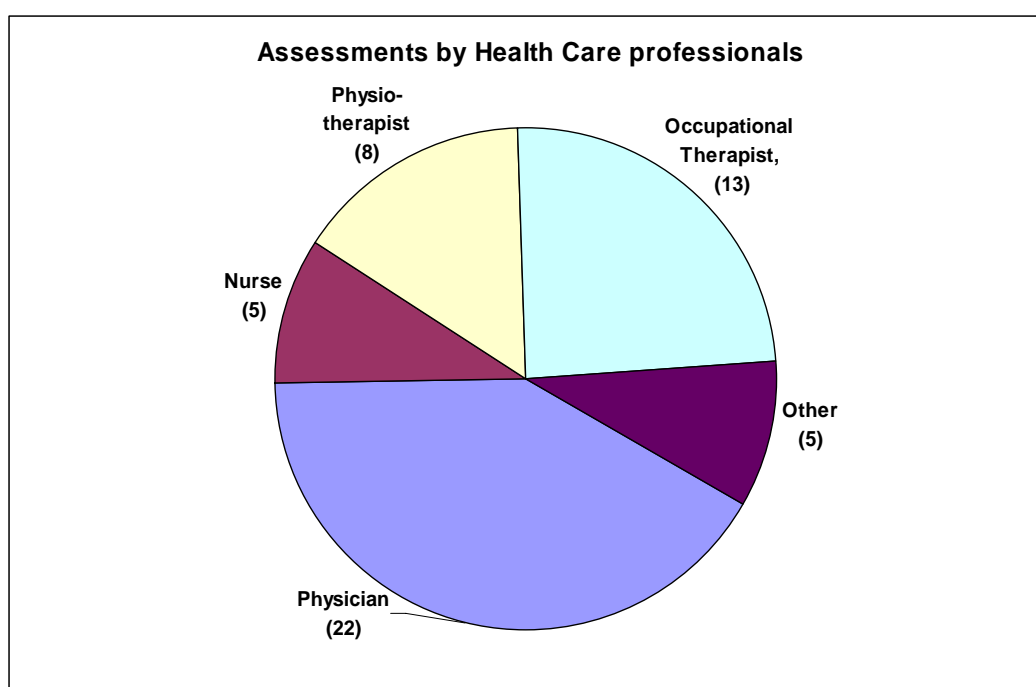


Assessment of user fitness and training

Scooter users were asked if an assessment was done and a recommendation made for them to acquire a scooter by a health care professional. Twenty one (40% of the total group of respondents) indicated that no assessment was conducted by a health care professional.

Sixty percent of the respondents indicated that they were assessed by one or more health care professionals. Figure 35 indicates that most of these respondents were assessed and a recommendation given a physician (22 respondents), followed by an occupational therapist (13 respondents).

Figure 35: Type of professions involved in scooter driver fitness assessments



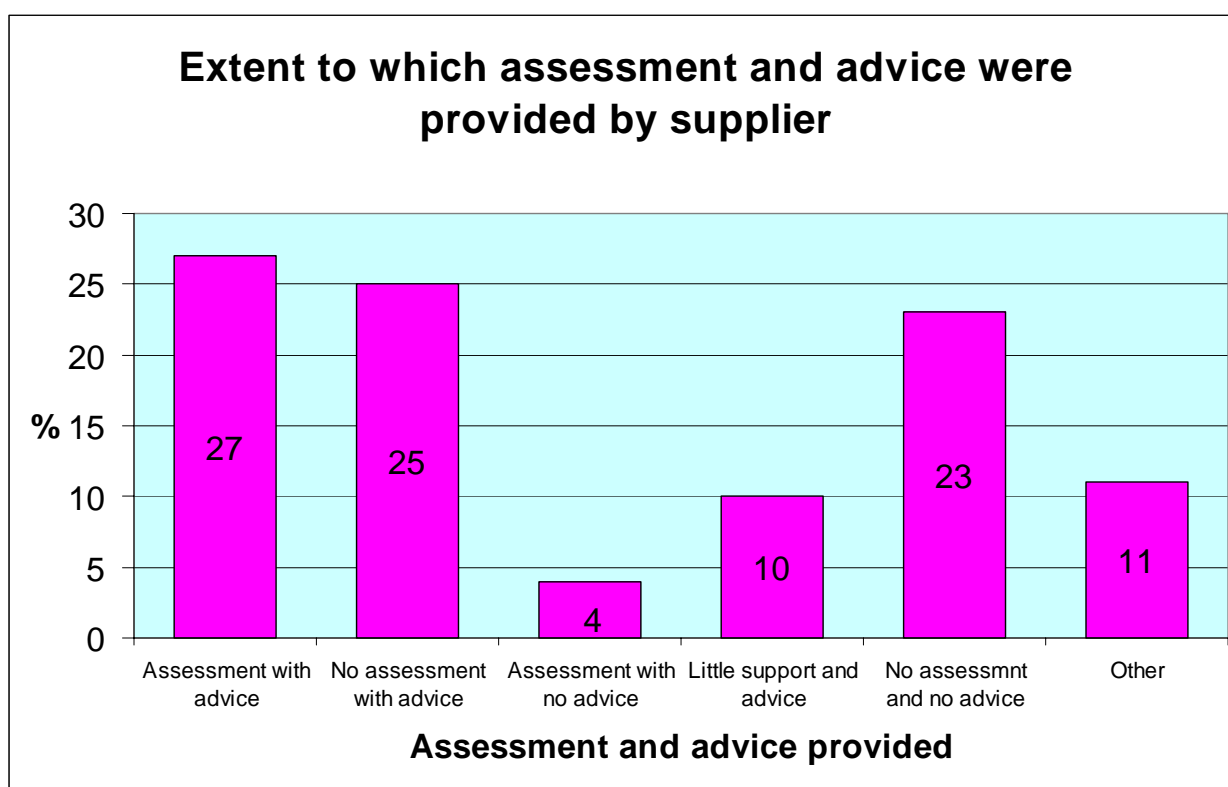
The respondents who were assessed and received recommendations also indicated that there were no “out of pocket” expenses to them for the assessment and the fees were covered by provincial health plans, and other government ministries like Veterans Affairs Canada.

Respondents were asked to indicate to what extent the supplier of the scooter (a scooter vender or private person) provided advice/training and made an assessment of the suitability of scooters for their needs. It is important to keep in mind that the question does not refer to an assessment, advice or training provided by a health care professional. Figure 36 reflects that one in four scooter users (27%) received the full service of “*supplier assessment and supplier provided advice and training.*” Half of the scooter users (52%) indicated that they received advice and training from the supplier. The other half (48%) of the respondents received little or no advice or support from the supplier. This finding compares negatively with the findings of a similar study

in the UK (Barham et al., 2004). In the UK only 18% of the scooter users received little or no advice/training, while in this study in the Fraser Valley nearly half (48%) of scooter users indicated that they have received little or no training.

Slightly more than one in ten users (11%) indicated that they had to seek information themselves by talking to other scooter users and/or by obtaining information about scooters and scooter driving from the internet. One in four scooter users (23%) received only the user's manual supplied by the manufacturer of the scooter and received no support, training or advice from the supplier.

Figure 36: Extent of advice and assessment by supplier.



Of the users who bought new scooters, approximately three out of four users (73%) indicated that they received either an assessment and or a good deal of advice. Of the 20 users who acquired used (second-hand) scooters, 15 (75%) indicated that they received no assessment of suitability to drive a scooter, and received little or no advice at the time of purchase. This finding is also connected with an earlier finding in this report where it appears that there is a much higher (than in the UK) incidence in the Fraser Valley of acquiring used, second-hand scooters.

Two-thirds of the respondents (64%) indicated that they were given the opportunity to try the scooter out before making a final decision to purchase it. When asked if their first scooter was the one that they needed, thus a good fit for their needs, most of the scooter users (85%) agreed that this was the case for them.

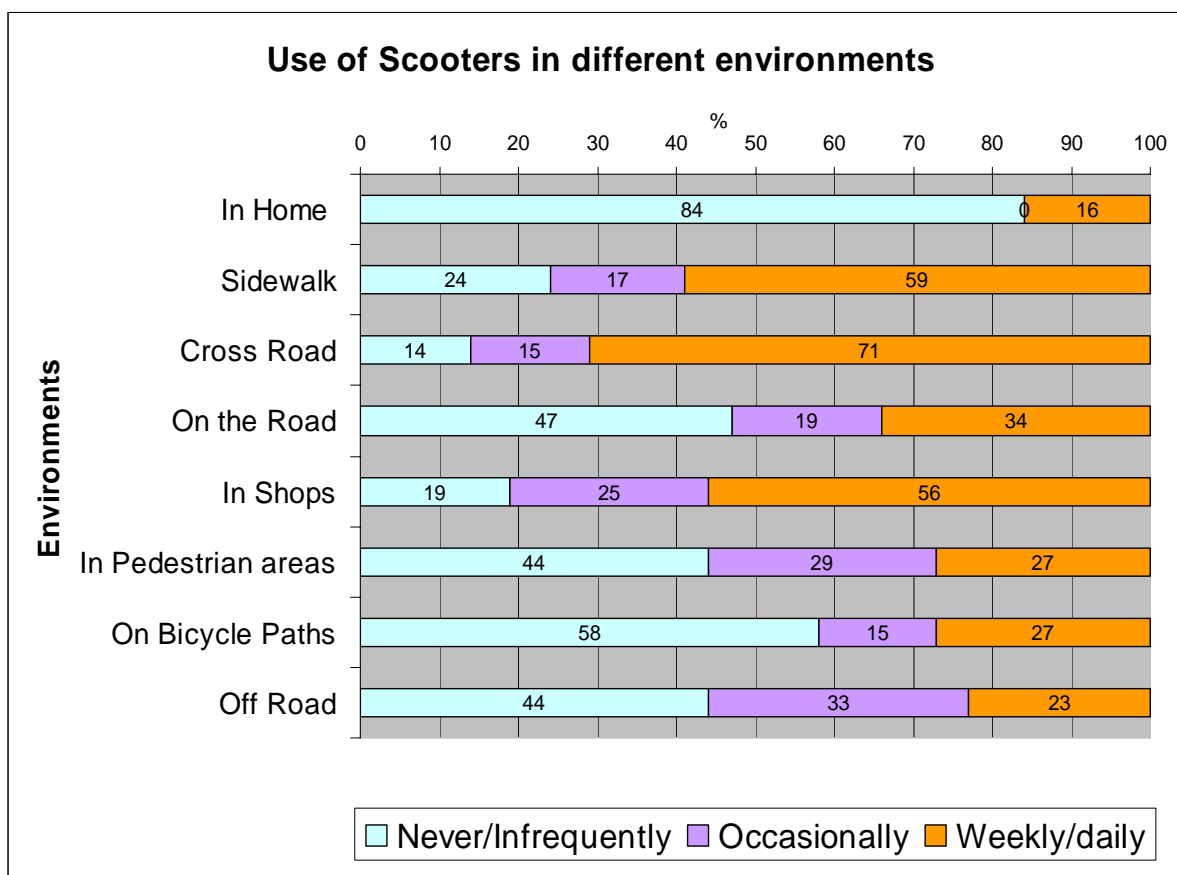
3.3.4 Mobility scooter users' patterns, satisfaction levels and issues

User patterns

Mobility scooter user patterns were assessed by eliciting information from scooter users about (1) the environments they use their scooters and (2) the activities they use their scooters for and the seasons they use their scooters for the activities. Responses are reflected in Figures 37 and 38.

Figure 37 reflects the findings that most scooter users (between 56% and 71%) use their scooter on a regular (daily/weekly) basis on the sidewalk, on the road when crossing the road, and in shops. A third (34%) use their scooters to drive on the road on a regular basis. Half of the users (53%) indicated that they drive on the road occasionally and on a regular basis. Most (84%) of the respondents never drive their scooter inside the home that confirms that most scooter users in this study mainly drive their scooter outside their residences. One in four (27%) of the respondents indicated that they use their scooter on a regular basis on bicycle paths.

Figure 37: Scooter user patterns in different environments



A more detailed analysis of scooter use in different environments is presented in Figure 38. When compared with a similar study on scooter use in the UK (Barham et al., 2004), similarities

and differences in scooter users patterns became known. Figures 37 and 38 indicate that overall a higher proportion of scooter users in the UK study use the different environments more frequently. For example, when compared to the sample in the Fraser Valley, a higher percentage of scooter users in the UK sample, use their scooters on a weekly/daily basis in environments such as at home, on sidewalks, to cross the road, and on the road. However, Figure 38 illustrates that except for use in pedestrian areas and on bicycle paths, there appears to be a similar trend in the user pattern between the UK and Fraser Valley groups. A similar trend emerges when the two groups are compared in terms of “*never/infrequent*” use of their scooters (see Figure 39). As in the case of weekly/daily use, the exceptions are in the areas for use in pedestrian areas and on bicycle paths where a higher percentage of scooter users “*never/infrequently*” use their scooters in those two areas.

Figure 38: Weekly/daily use of scooter in different environments: Fraser Valley and UK

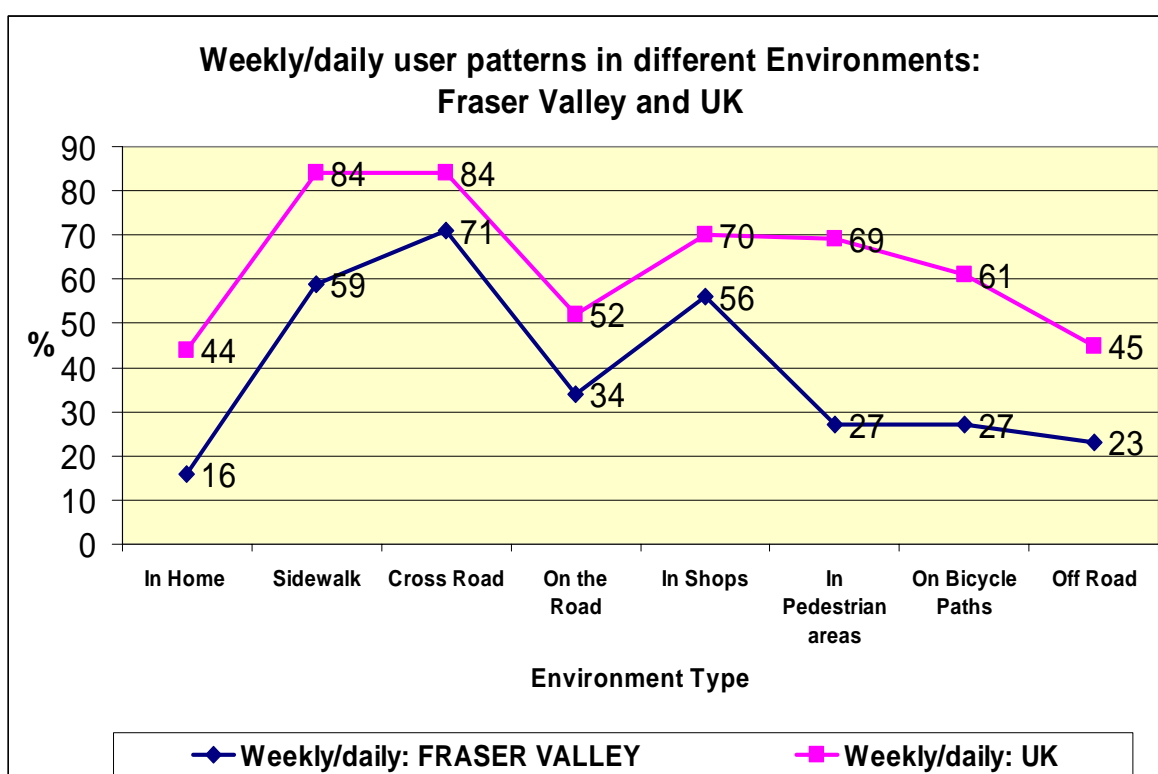
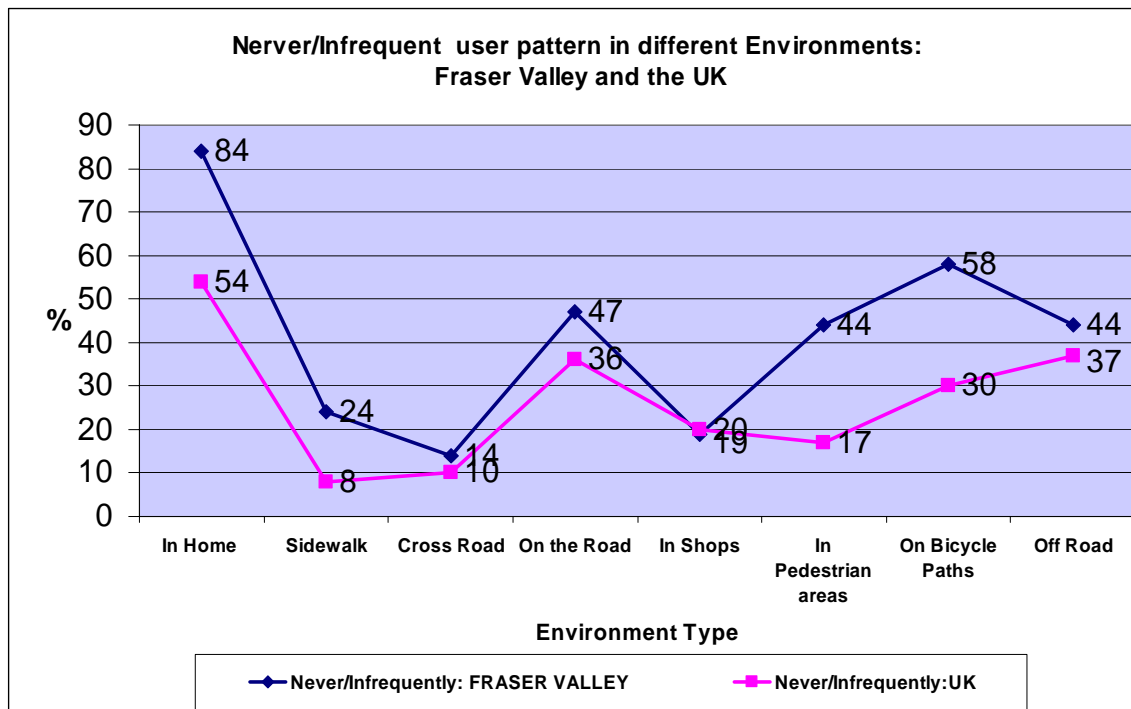
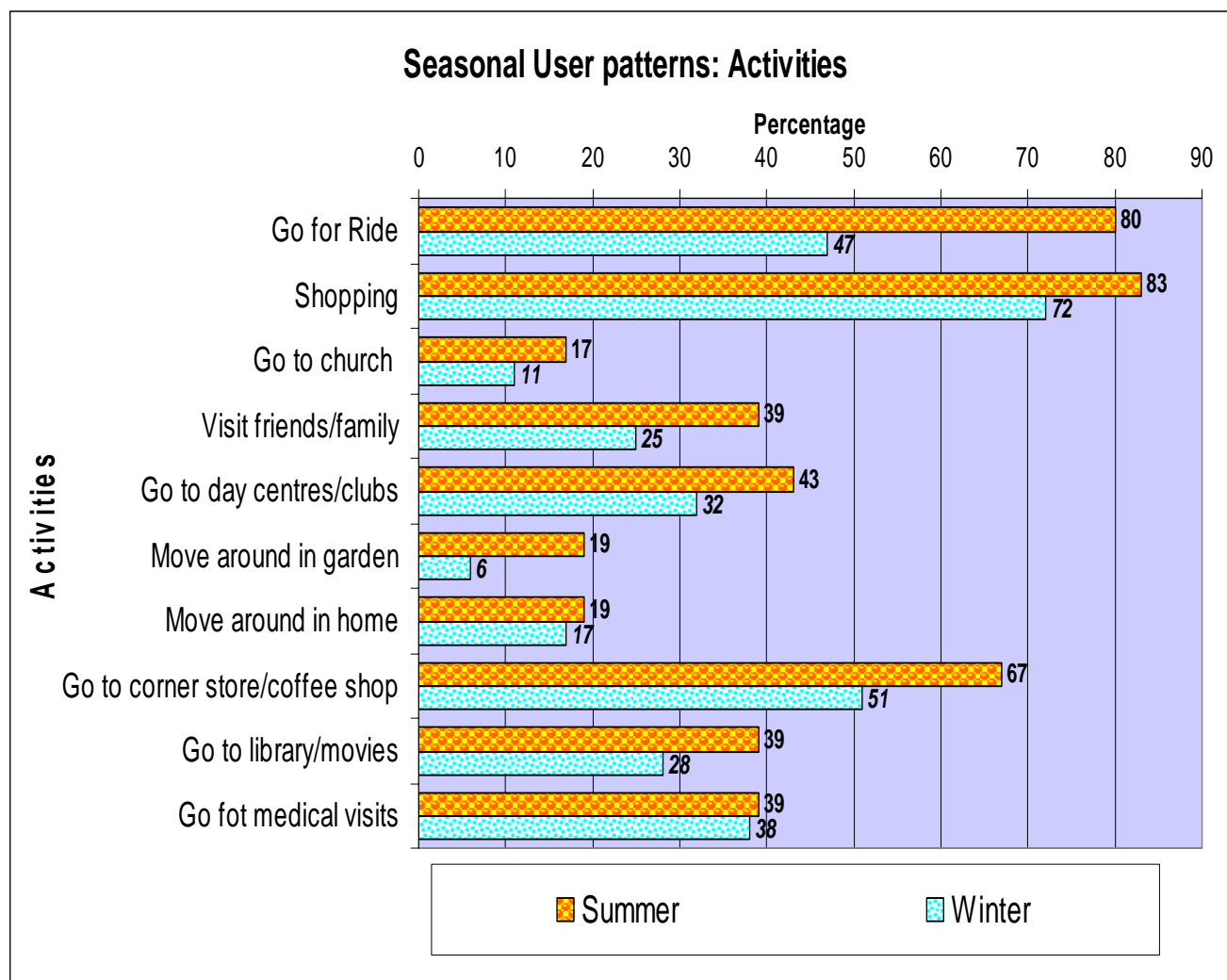


Figure 39: Never/infrequent use of scooter in different environments: Fraser Valley and UK



In addition to information on location, frequency and regularity of scooters use, respondents were asked to indicate for what activities they use their scooters and whether they used them in summer (May – September) or in winter (October to April). The findings are presented in Figure 40. The analysis indicates that the most popular activities in both winter and summer include scooter use (more than 50%) for the following: to go for rides, to do shopping and to go to the corner store or to a coffee shop. All three these favorite destinations are indicative of the need to fulfill basic needs, such as buying food, participating in recreation, and maintaining social contact. Approximately a third (between 29% and 43%) of the scooter users use their scooters (summer and winter) to visit friends and family, to go to seniors’ centers and clubs, to go to places of entertainment and education such as libraries and movie theatres. Participants also use their scooters to go to places where they receive healthcare, such as visits to the doctor, clinic, and hospital. Scooter users use their scooter the least (less than 20%) to go to church or temple, move around in the garden or in their own or others homes.

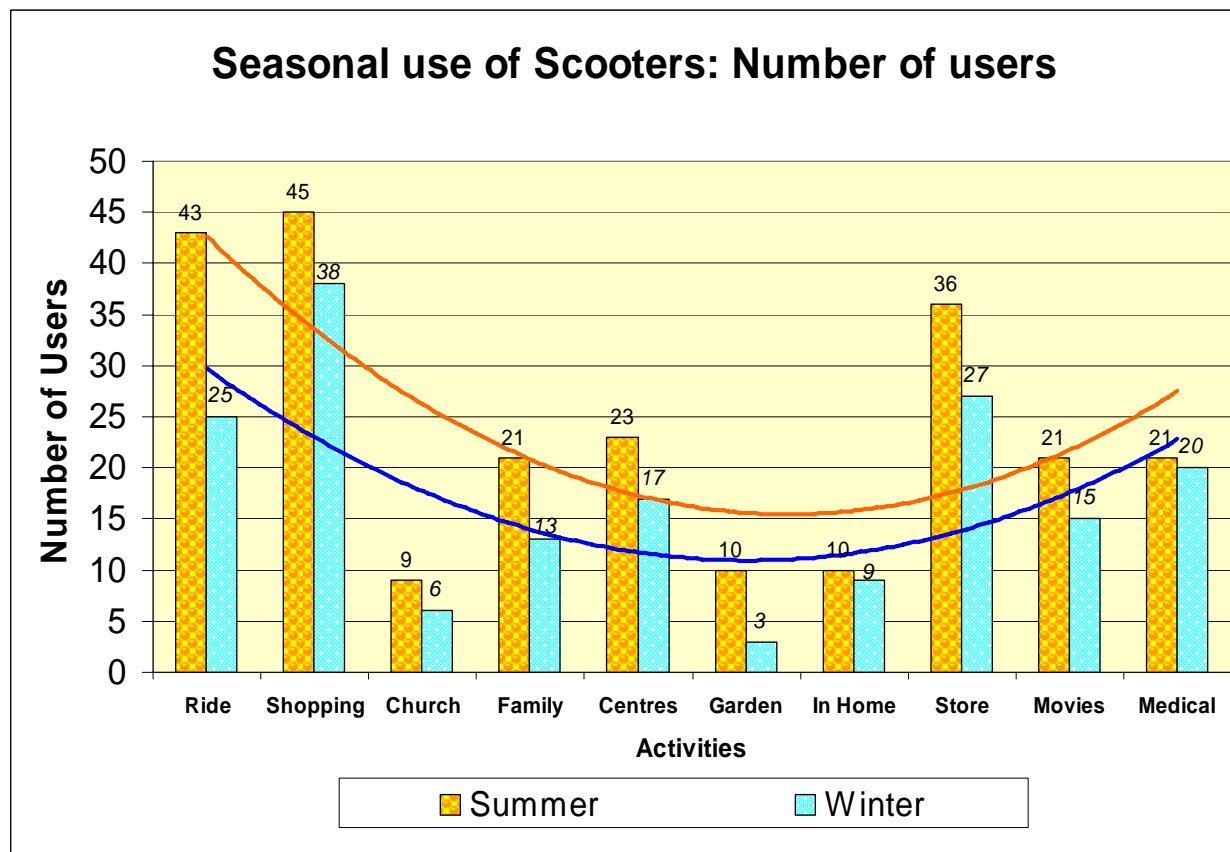
Figure 40: Scooter seasonal user patterns for different activities



An analysis of the differences between summer and winter use of scooters clearly indicated that fewer scooter users use their scooter for activities in the winter (October to April). Figure 41 reflects a different trend in the user pattern in summer and winter. In the summer the scooter user rate for all the activities is 58% and in winter it is 42%. That is similar to the seasonal rate in the Danish study of 60 % in summer and 42% in winter (Brandt et al., 2004).

Figure 41 indicated that the largest difference in seasonal use is with regard to activities related to outdoor use, such as going for a ride and moving around in the garden. Smaller seasonal differences exist in the activities related to shopping, going to recreational activities such as attending seniors' centers, movies, and visiting friend and family. There appear to be no seasonal differences in use of scooter for medical purposes.

Figure 41: Seasonal use of scooter by number of scooter users



The results of the study on scooter users' patterns in the Fraser Valley were compared with that of a similar study in Denmark (Brandt et al., 2004). The comparative analysis for winter and summer is reflected in Figure 42 and Figure 43. There appears to be similarities and differences between the Danish and Fraser Valley groups in terms of seasonal use. Irrespective of season, more Danish scooter users than scooter users in the Fraser Valley use their scooters to go to religious gatherings (e.g. churches/temples) and to visit family and friends. More users in the Fraser Valley (than the Danish group) appear to use their scooters to go to the corner store, coffee shops, and to go seniors' day centres, clubs, visit the library and go to movies. It appears that the Fraser Valley users use their scooters more for recreational, educational, and social activities.

Figure 42: Summer scooter use: Comparison Fraser Valley and Denmark

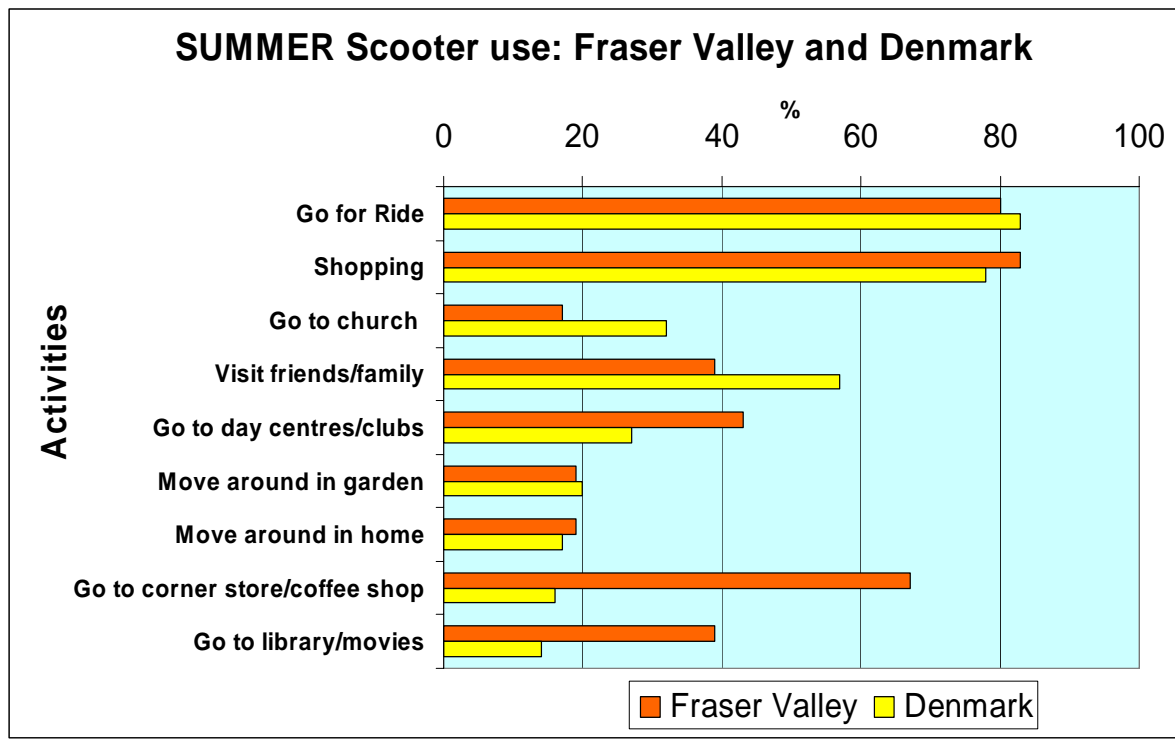
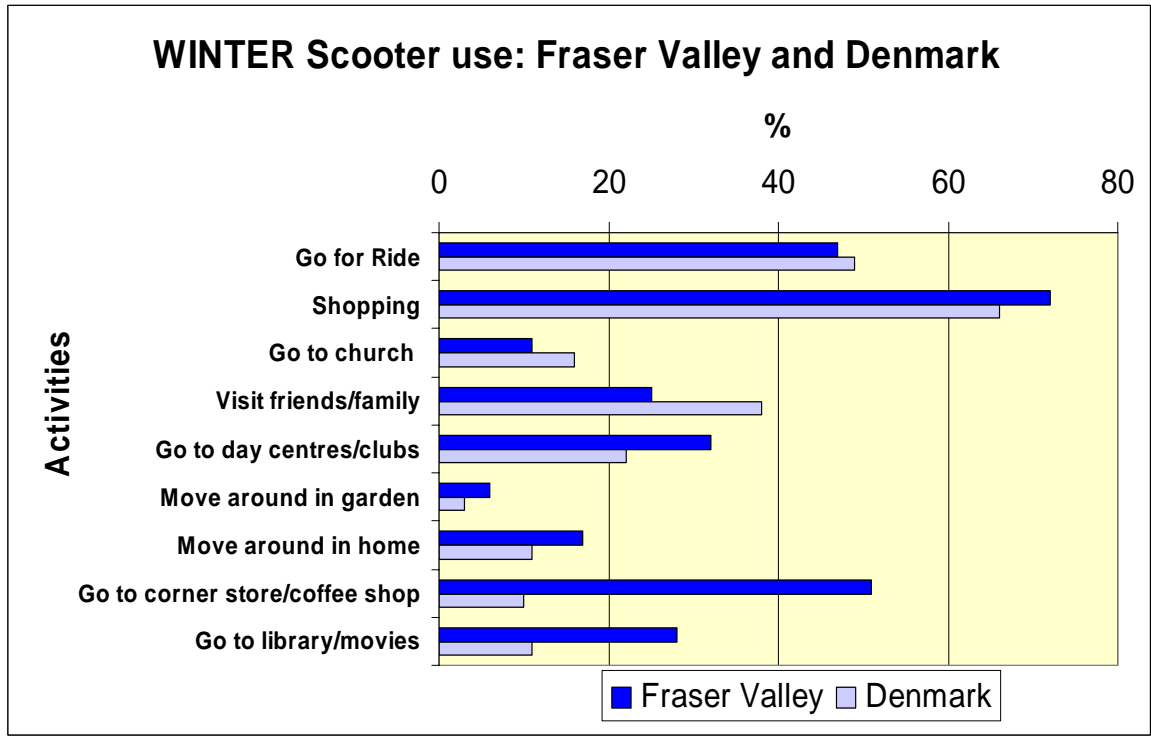


Figure 43: Winter scooter use: Comparison Fraser Valley and Denmark



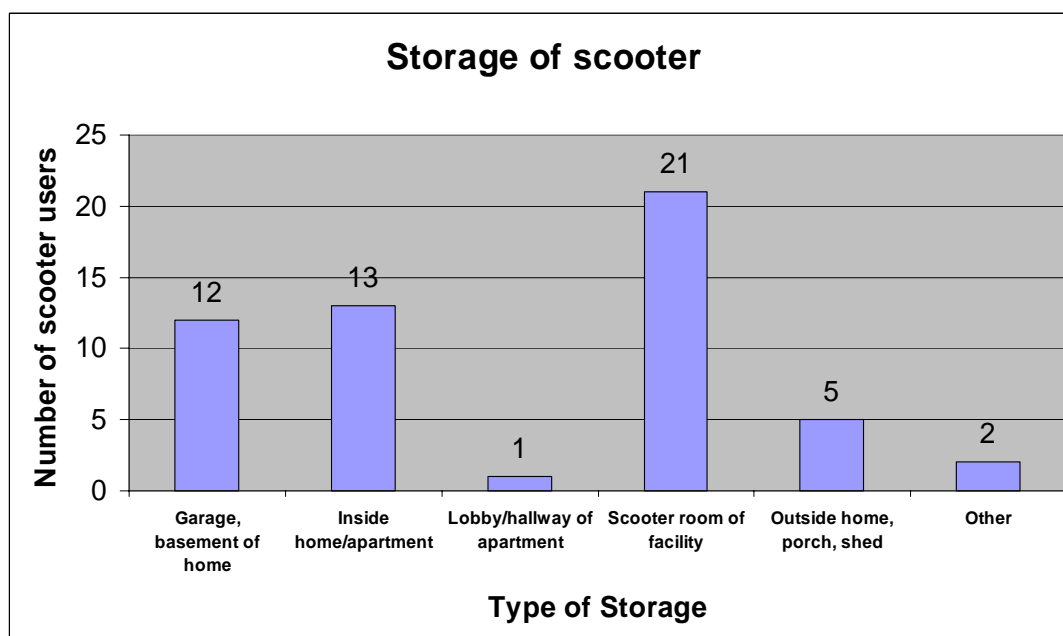
Scooter parking, maintenance, insurance and accidents

Forty percent (21 respondents) indicated that they take their scooters with them when traveling longer distances. Half of this same group of scooter users, who take their scooters when traveling, are able to transport their scooters in private cars. A third of this group transport their scooters with special transportation such as the handyDART service or wheelchair taxis. Two respondents indicated that they use public transport like a transit bus or skytrain to transport their scooters.

Scooter users were asked what services they need for their scooters when traveling away from home. All respondents (21) who travelled longer distances indicated that they needed a place to recharge their scooter's batteries. One respondent found that not all buildings have accessible elevators available.

Figure 44 indicates that most of the scooter users store their scooters in designated areas of their primary residences such as the garage or basement of their homes or apartments, or in a "scooter room" that may be in the basement of a independent living or assisted living facility. Thirteen of the respondents indicated that they store their scooters inside their homes or apartments, and five users store them outside on porches or in garden sheds. One respondent indicated that she/he use the lobby/hallway of an apartment for scooter storage. It appears that most of the newer housing facilities for seniors are designed or adapted into providing "scooter rooms" for safe storage and electric outlets to charge scooter batteries.

Figure 44: Storage of scooters

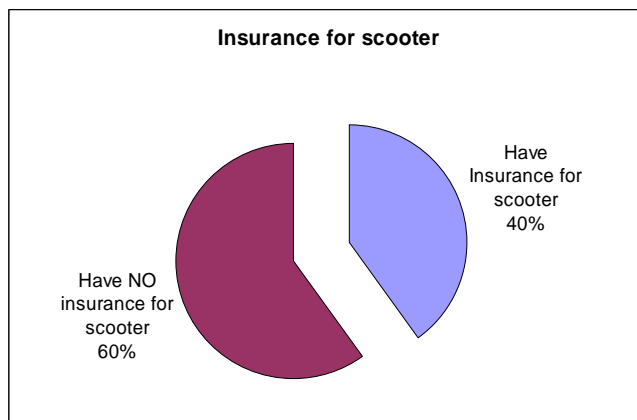


The majority of scooter users (83%) indicated that they maintain (i.e. service) their scooters. Most of the users (92%) who maintain their scooters use the services of a scooter dealer (i.e. scooter shop) to provide repair and maintenance services. Two-thirds (67%) of the scooter users

who maintain their scooters, indicated that they only take it for a service when “*something is wrong with the scooter*”. A third of the scooter users take their scooters in on a regular basis (every 6 or 12 months) to get the scooters serviced.

Scooter users were asked if their scooter were insured. Figure 45 indicates that more than half (60%) of the scooter users do not have insurance of any kind to cover their scooters. When the scooter users were asked about their perceptions of “*mandatory insurance*” for scooters, 3 in 4 (72%) users agreed or strongly agreed that scooters must be insured.

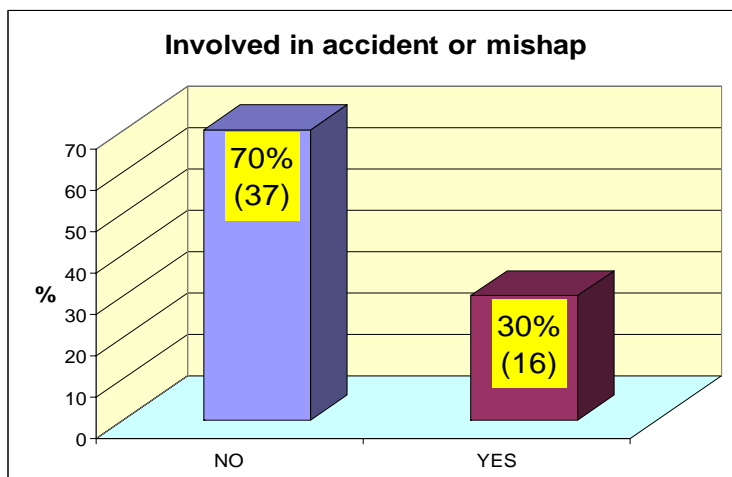
Figure 45: Scooter insurance



All of the twenty-one respondents who had insurance for their scooter, indicated that this is part of their household insurance package and includes coverage for damage and theft at a minimum. Most of this group was unsure if their insurance included liability insurance.

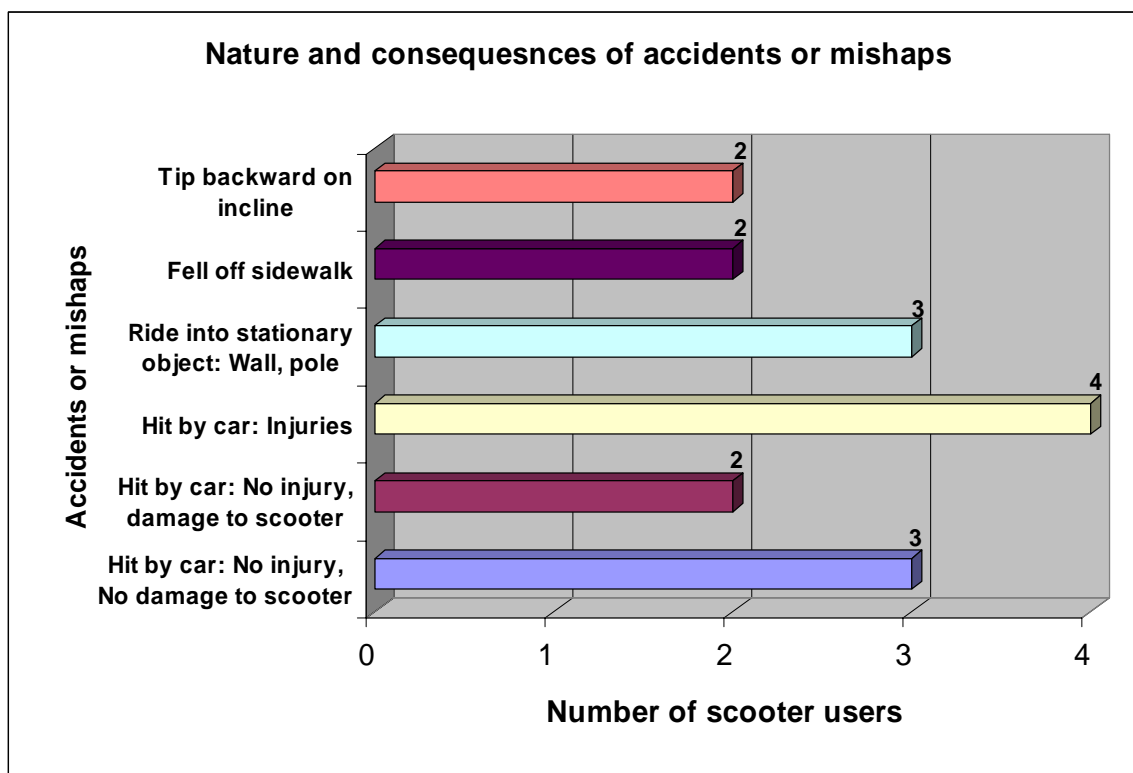
Scooter users were asked if they have been involved in a collision or other type of accident or mishap with their scooter. These results are reflected in Figure 46 and indicate that 16 (30%) of the scooter users were involved in at least one incident.

Figure 46: Scooter users involved in accidents or mishaps



The sixteen scooterer users who have been involved in accidents or mishaps were asked to describe the consequences of the incident(s). Their responses are categorized in Figure 47. Four of the scooterer users were hit by cars and sustained injuries; one user sustained serious injuries because of the incident. Five users were hit by cars but did not sustain personal injuries and suffered less serious consequences. Four users experienced some type of backward or sideward fall from their scooters. It appears that most of these incidents could have resulted in falls and/or fractures for the scooterer users involved.

Figure 47: Scooter users: Consequences of accident and mishaps



In response to the question whether scooter users have ever been approached by a police officer about their scooter driving, the majority (94%) responded that they had not been approached. Three respondents (6%) indicated that they have been approached by a police officer.

Importance and satisfaction with scooters

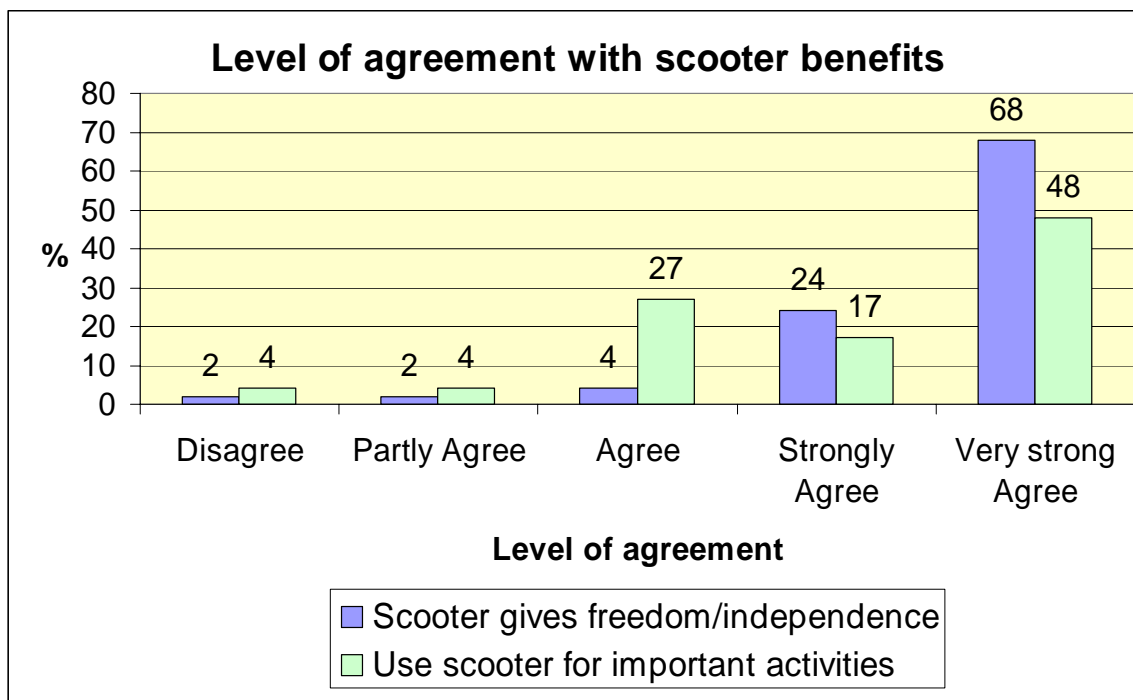
Respondents were asked how important their scooters were to them. The majority (96%) indicated that their scooters are “quite important” to “very important” to them.

Scooter users were asked to indicate the level of agreement with the following statements:

- My scooter gives me freedom to get around independently.
- I can use my scooter to do activities I think are important in my life.

Their responses are captured in Figure 48 where it is indicated that most of the scooter users agreed or strongly agreed with these statements and were of the opinion that their scooters are beneficial to them.

Figure 48: Scooter users' level of agreement with scooter benefits



Four respondents indicated that they were unable to use their scooters to engage in the activities that were important in their lives. Reasons given for this response were that the individuals are, due to medical conditions, unable to sit for a sufficient length of time, and that they encounter obstacles, such as stairs, to access buildings and places they want or need to go to.

When asked how satisfied they are with their scooter, the majority (91% or 47 respondents) indicated that they are “*quite satisfied*” or “*very satisfied*” with their scooters. Two respondents indicated that they were not satisfied with their scooters. One respondent indicated that the scooter was uncomfortable to sit on, and the other indicated that the scooter had too many mechanical problems.

Scooter users' perceptions of selected issues and concerns

Scooter users were asked to indicate their level of agreement or disagreement with a selection of issues pertaining to the use of mobility scooters. Some of the issues pertain to the regulation of scooters and others to accessibility and safety for scooter users. The responses are summarized in Tables 9 and 10.

Table 9: Level of agreement with regulatory issues

Issues or Concerns	Disagree	Partly agree	Agree	Strongly agree	Very strongly agree	N/A
Scooters must be insured	15%	9%	36%	19%	17%	4%
If the scooter could travel at less than 7kph (4mph) , it must be registered and the driver licensed.	74%	11%	7%	0%	4%	4%
If the scooter could travel at up to (maximum of) 13kph (8mph) , it must be registered and the driver licensed.	42%	11%	33%	4%	4%	6%
All scooter drivers must be assessed, tested (including medical tests) and licensed before they drive a scooter.	36%	24%	28%	2%	4%	6%
Training for scooter users should be compulsory.	21%	26%	19%	9%	17%	8%

Table 10: Level of agreement with issues related to accessibility and safety

Issues or Concerns	Disagree	Partly agree	Agree	Strongly agree	Very strongly agree	N/A
I feel safe using my scooter	4%	19%	42%	16%	19%	0%
I find it difficult accessing buildings and spaces with my scooter	25%	28%	13%	17%	9%	8%
Sometimes scooter drivers are forced to use the road because no sidewalks or curb ramps are available.	6%	2%	11%	21%	51%	9%
Scooters drivers should be courteous to pedestrians.	0%	0%	25%	25%	50%	0%
It is difficult to find parking for my scooter.	38%	2%	9%	8%	4%	39%
There should be designated parking spots for scooters.	25%	13%	23%	9%	13%	17%
There should be clearly designated and marked lanes for scooters.	29%	10%	15%	11%	31%	4%

Figure 49 reflects the data that most of the scooter users were in agreement with mandatory insurance and it appears that most scooter users perceive one or another form of insurance as

important for them as scooter operators. The majority (85%) are in disagreement with any regulation for slow scooters (top speed of less than 7kph) and the regulation of the operator of a slow scooter. Just more than half (53%) of users opposed the regulation of the faster scooter (top speed more than 7kph). Scooter users were more divided in their opinions on the faster scooters. Most scooter users (60%) are against mandatory assessment, testing and a driver's license for a scooter user. Only 6% were strongly in favor of mandatory testing and licensing of a scooter driver. Close to half (47%) of the scooter users were not in favor of mandatory training for scooter users. This finding should be interpreted with caution. Comments made by several scooter users suggested that they were in favour of training, but disagreed about whether that training should be mandatory or not.

Figure 49: Scooter users' level of agreement with regulatory issues

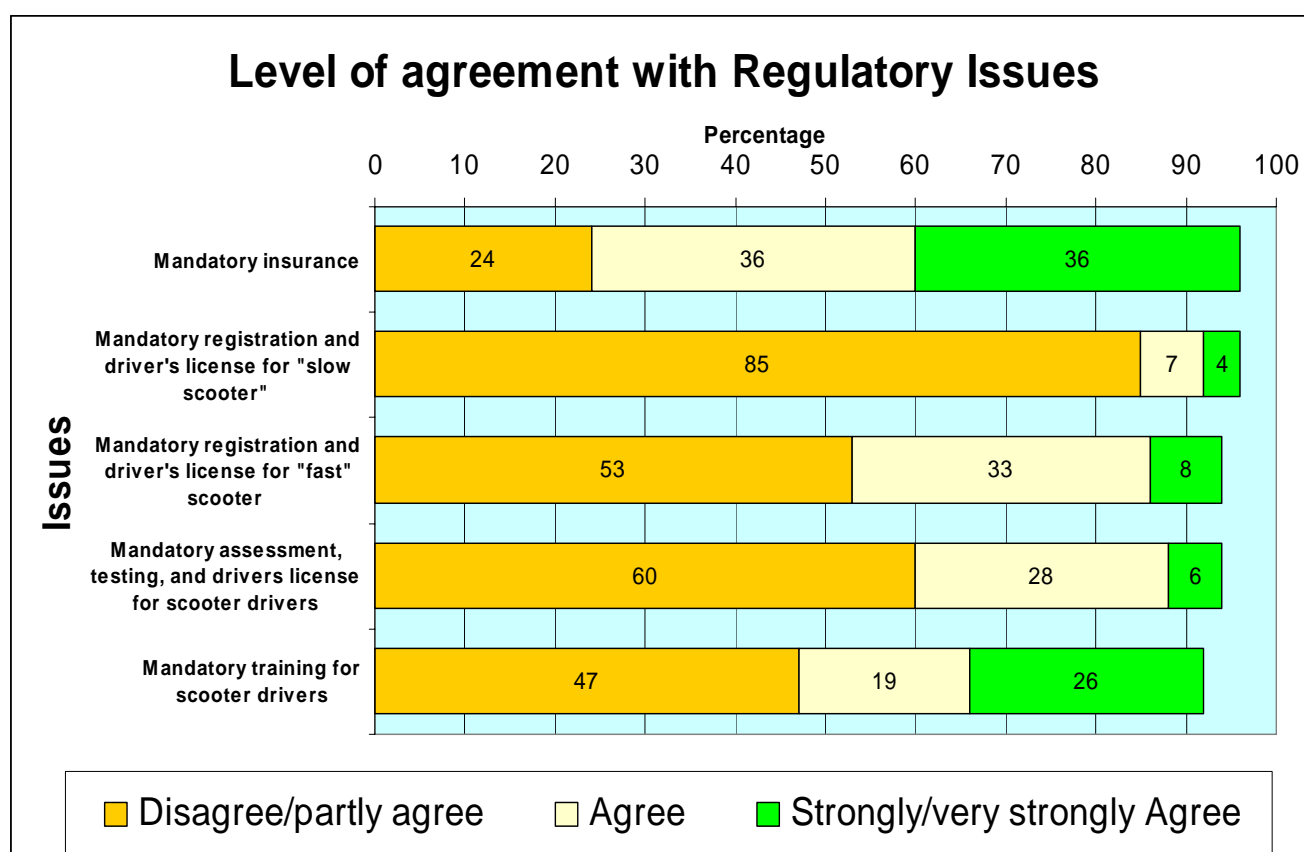
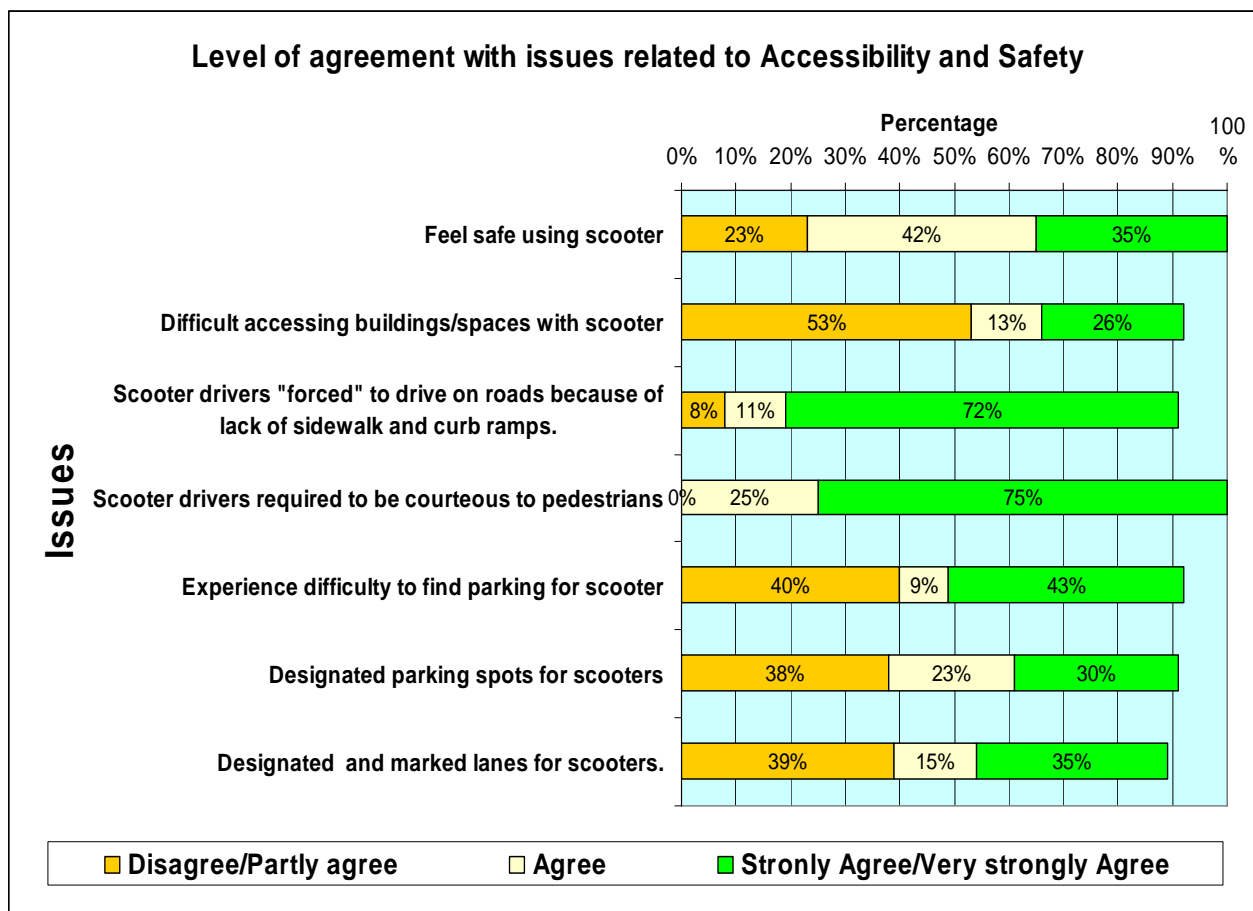


Figure 50 reflects the data that most scooter users (77%) perceived themselves to be safe when using their scooters. Regarding the experiences of difficulty with accessing buildings or spaces or finding parking for their scooters, the scooter users were divided. About half of them experienced difficulties in these areas, while the other half did not perceive this to be problematic. There was a high level of agreement (83%) that scooter users are forced to drive on the road because there were no sidewalks available and/or insufficient curb cuts. All the scooter users (100%) were in agreement that scooter users should be courteous to pedestrians (i.e. unmotorised pedestrians). Scooter users were divided on the issues regarding whether there

should be designated scooter lanes and designated parking spots for scooter users. About half of the scooter users agreed that there should be special designated scooter lanes and parking spots for scooters.

Figure 50: Scooter users' level of agreement with accessibility and safety issues.

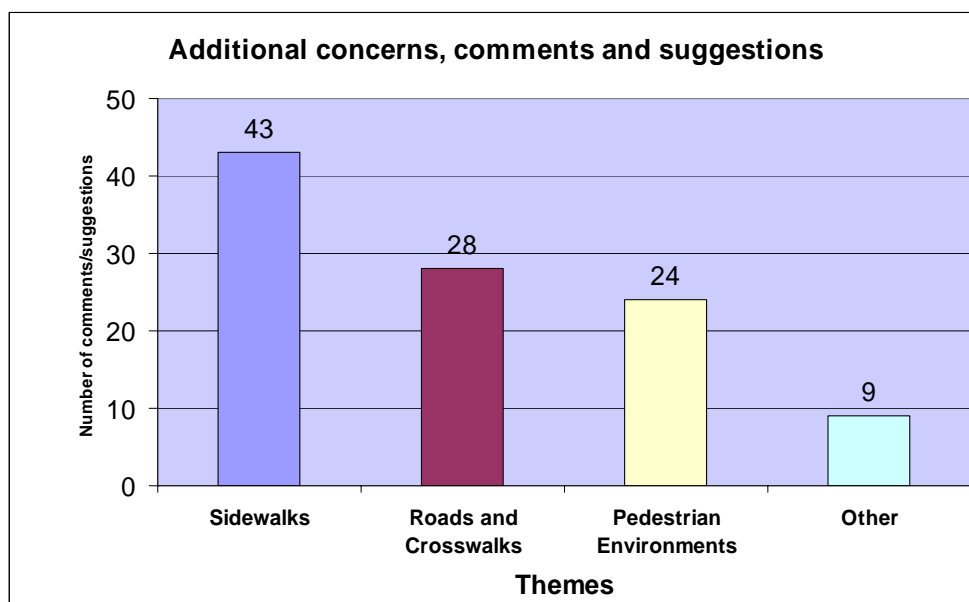


Additional concerns, comments and suggestions

Respondents were given the opportunity to express any concerns or issues they perceived to be most pressing. The scooter users provided these comments spontaneously. The comments can be categorized in 4 groups namely (1) sidewalks; (2) road and crosswalks; (3) pedestrian environments; and (4) Other.

Figure 51 provides a summary of the frequency of the responses per category.

Figure 51: Groups of concerned and issues raised by scooter users.



Forty three of the respondents (81%) raised concerns about the state of the sidewalks in all the communities surveyed. Detailed comments were provided on curb cuts that were considered to be too steep, and uneven surfaces that create a bumpy and uneven ride for scooter users. This was especially a problem for the users with joint and back problems. They indicated that the uneven surfaces exacerbated their pain and discomfort. Numerous scooter users commented on the existence of utility poles on sidewalks and scooters users' inability to safely maneuver around those poles. Fears were expressed that users will fall onto sidewalks when attempting to maneuver around the poles. Serious concerns were expressed about road building construction and the obstacles created by building construction on sidewalks. Several examples were given of different construction sites in communities where it has become *"basically impossible"* for scooter users to use the sidewalks safely.

A total of 29 (55%) of the scooter users commented on issues related to use of the roads and crosswalks. The main complaint was that sidewalks were not available in many neighborhoods of the communities surveyed. Some of the scooter users thought that they were *"forced"* to drive on the road because of the lack of sidewalks. One of the main issues at crosswalks was the placement of the buttons to activate the pedestrian crossing lights. Scooter users expressed concern about the placement of the activation buttons on the poles on raised *"islands"* or *"pork chops"*. Scooter users have had to maneuver their scooter on the *"islands"*, around the poles to have access to the activation buttons. In those situations, scooter users have to negotiate tighter corners, uneven surfaces and a short timeframe (i.e. before the light turn red again). Several scooter users complained about the length of time allowed for light changes at pedestrian crossings. They perceived the timing as *"too short"* to cross the road safely. In light of the lack of sidewalks, several scooter users suggested separate lanes for scooter and/or the use of bicycle lanes by scooters.

A number of scooter users (23 or 43%) draw attention to what they perceive to be “*negative public attitudes*” and a lack of accessibility for scooters. Some scooter users commented on the attitudes of car drivers and other unmotorised pedestrians. These users claimed that the general public (including motor vehicle drivers) are patronizing, inattentive, rude and disrespectful to scooter users. It was suggested that the public, including motor vehicle drivers, should be educated in how to treat scooter drivers appropriately. Some scooter drivers identified problems with accessibility. Examples of lack of accessibility included narrow doors, hallways and of aisles in stores, washrooms and other public places that made it difficult for scooter users to navigate. Some scooter users found it difficult to access some buildings (public and private) in their communities because of stairs and lack of ramps. Even though scooter users appreciated that some buildings have electric doors, some of the doors need to be activated by pushing a button. The buttons are in some cases not easily accessible to scooter users.

Individual scooter users raised specific concerns that they perceive to impact negatively on their ability to safely use their scooters. These concerns include:

- No safe parking at shopping malls or designated areas at shopping malls to charge scooter batteries.
- Need for scooter users to be aware of personal safety and the possibility that they can be victims of robbery and theft.
- Some scooter users are required by their landlords to pay additional fees for the electricity they use to charge their scooter batteries.
- Scooter users need to have liability insurance.

3.4 Assessment of scooter routes

Based on the information obtained from the stakeholders (focus groups and interviews) and scooter users (survey), the researchers were able to identify the major difficulties experienced by scooter users when they are using their scooters in the communities. For purely illustrative purposes, the researchers selected scooter routes and documented the issues and strengths of the routes for scooter users.

The examples that follow were documented by photographs and comments are made regarding the implications for scooter users. The selected scooter routes were mainly close to residential facilities for seniors and close to major health care facilities in the community. The communities from which the examples were taken are not specifically identified. The intention of the researchers is not to illustrate the issues and strengths of a particular community, but rather to draw attention to the typical difficulties scooter users experience throughout the region. Further, the intention is to illustrate with examples how communities in the region have already provided environments that are conducive to safe scooter use (e.g. good examples).

Examples of problem areas for mobility scooters

Figure 52: Construction: Obstacles, uneven surface, change in surfaces, inadequate space around the pole.

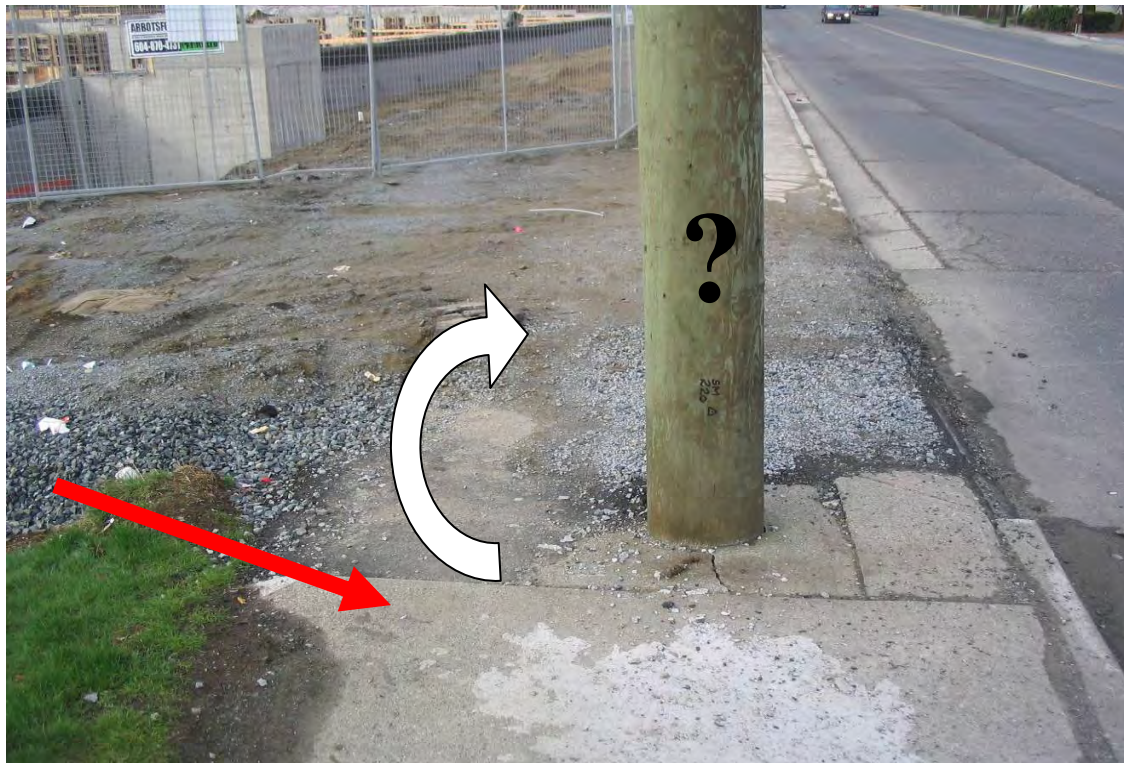


Figure 53: Construction Site: Change in surfaces. Sidewalk comes to an abrupt end, change to uneven gravel.



Figure 54: Change in surfaces; uneven surfaces.



Figure 55: Obstruction on sidewalk. Potential to damage scooter wheels. Not enough room to pass. Passing obstacle would be too close to curb edge.



Figure 56: Sidewalk comes to an “abrupt” end. No escape route for scooter. Scooter needs to back up all the way or be lifted off the curb (that may not be possible) and continue journey on the road.



Figure 57: Access point to sidewalk on overpass bridge: Sharp and uneven edge.

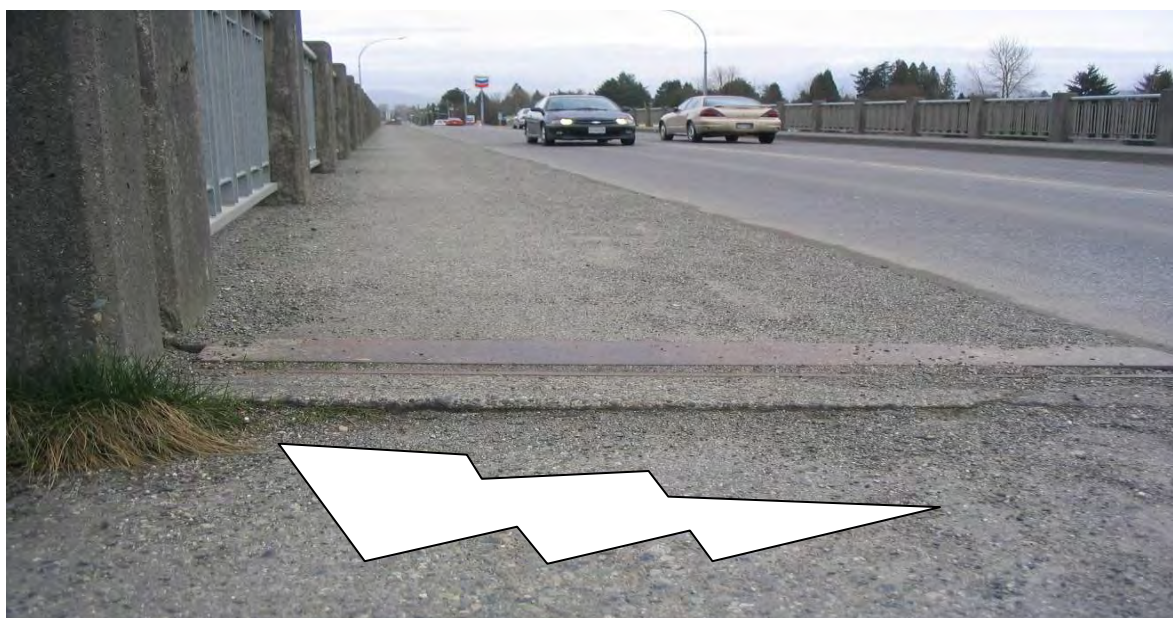


Figure 58: Freeway overpass: This is a potentially dangerous situation for a scooter user.

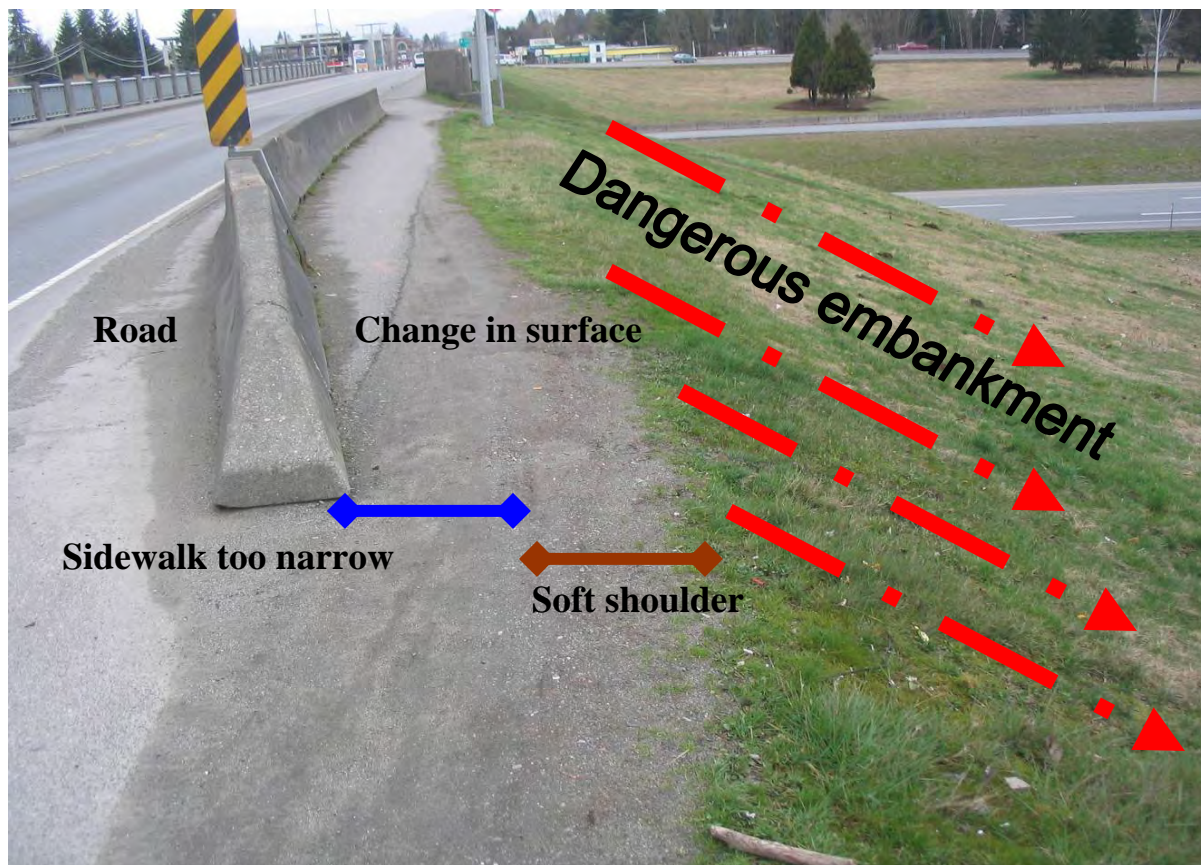


Figure 59: Difficult to access button on pole at crosswalk. Not enough room for scooter to maneuver on raised island or “pork chop”. Danger of falling off the curb edge.



Figure 60: Difficult to access button on poles at crosswalk. Soft and muddy surface around pole. Scooter may get stuck on soft surface.



Figure 61: “A sidewalk disappears”.
From a wide sidewalk, to narrower sidewalk, to no sidewalk in a few meters. Example of a scooter driver that is “forced” to drive on the road.

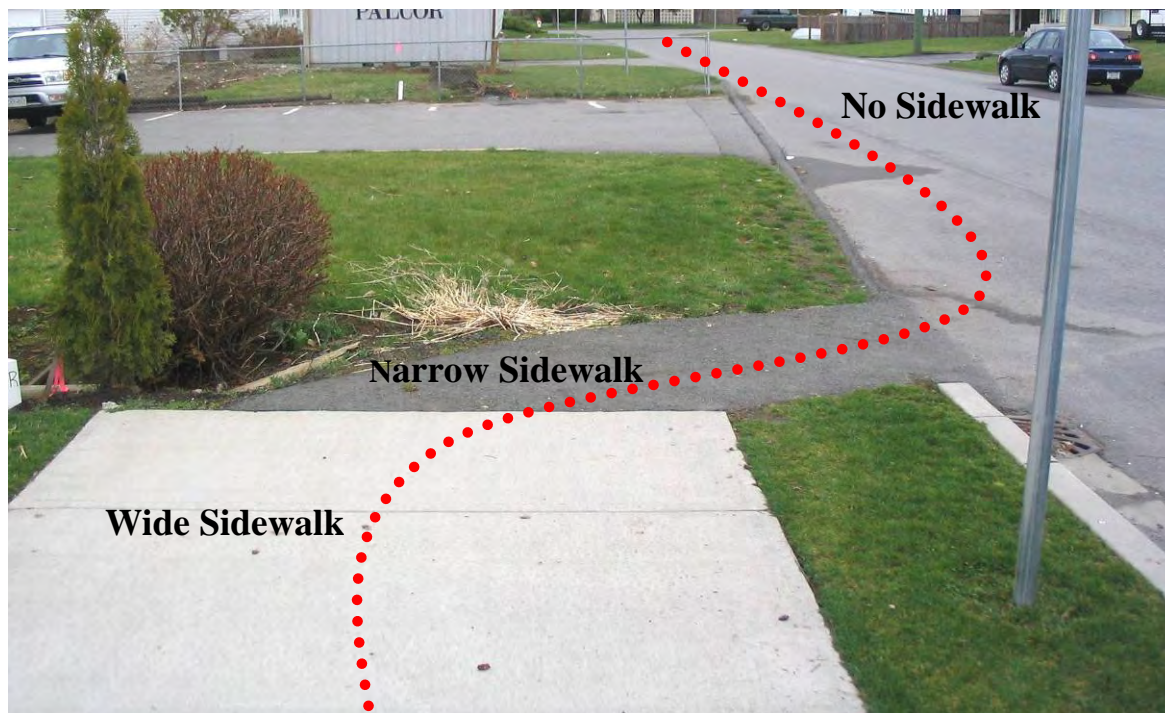


Figure 62: Use of bicycle lanes: Scooter users reported that they use bicycle lanes because of rough surfaces of sidewalks, lines in sidewalks (construction joints in the surface) and the “ups and downs” caused by driveways.



Figure 63: Change in sidewalk surfaces.



Figure 64: Pole in sidewalk, sidewalk widens, uneven surfaces..



Figure 65: Change in sidewalk width. Sidewalk 2.5 meter change to 1.5 meter.

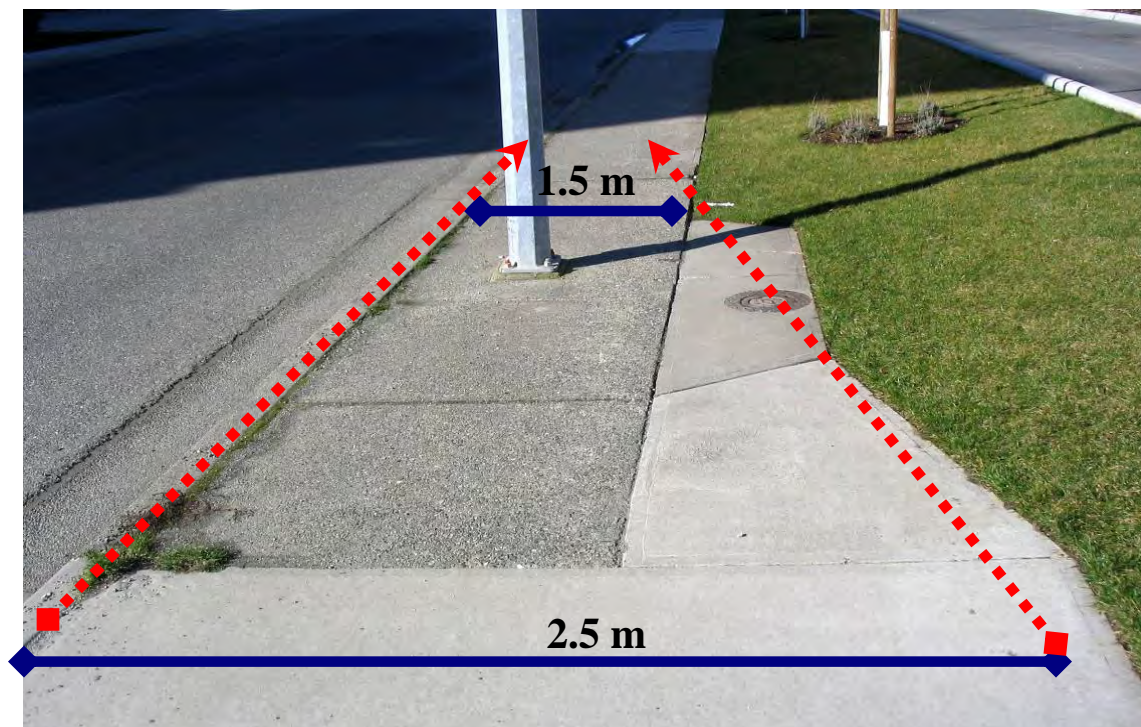


Figure 66: Different sidewalk surfaces.



Figure 67: Widen sidewalk around pole. Vegetation causes an obstruction.



Figure 68: Pole in sidewalk, uneven surface, cracks in sidewalk.



Figure 69: Pole in sidewalk with soft shoulder.



Figure 70: Rough sidewalk surface.



Figure 71: Crosswalks: Buttons on pole difficult to access.



Examples of good routes for mobility scooters

Figure 72: Wide sidewalk, poles are not obstacles, grass shoulders to accommodate sidewalk congestion. Sidewalk is 226cm (89 inches). This is an example of one of the widest sidewalks.

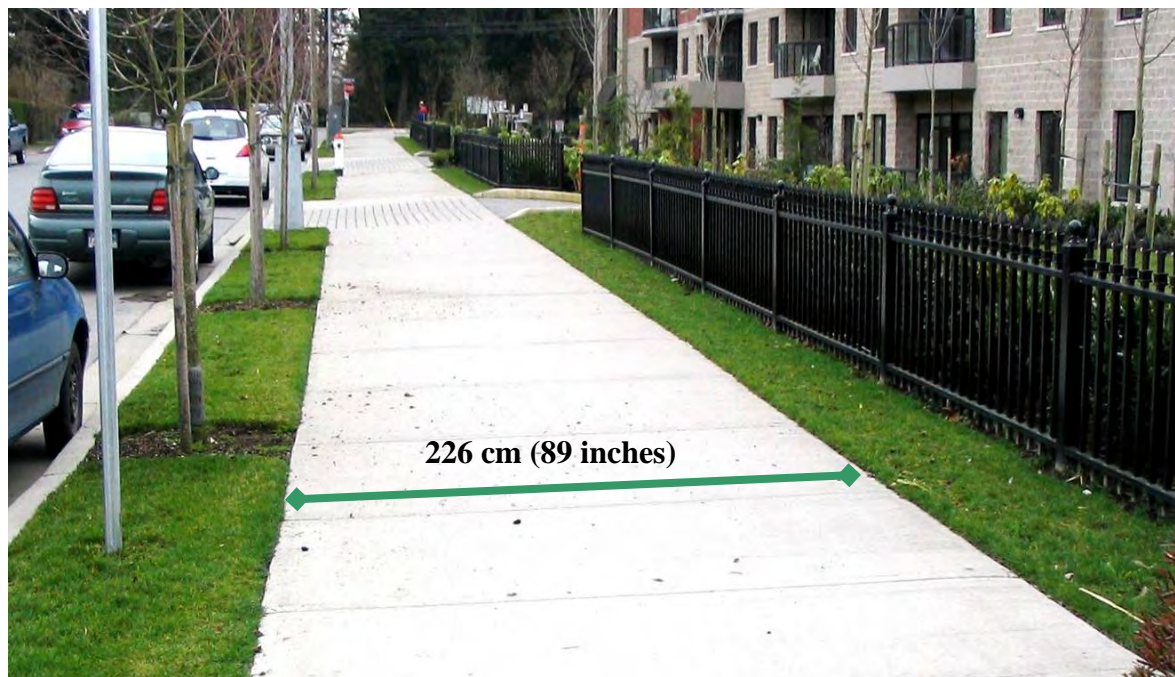


Figure 73: Example of a green “buffer zone” or “boulevard” between street (curb edge) and sidewalk with trees. Sidewalk is near a seniors’ facility.

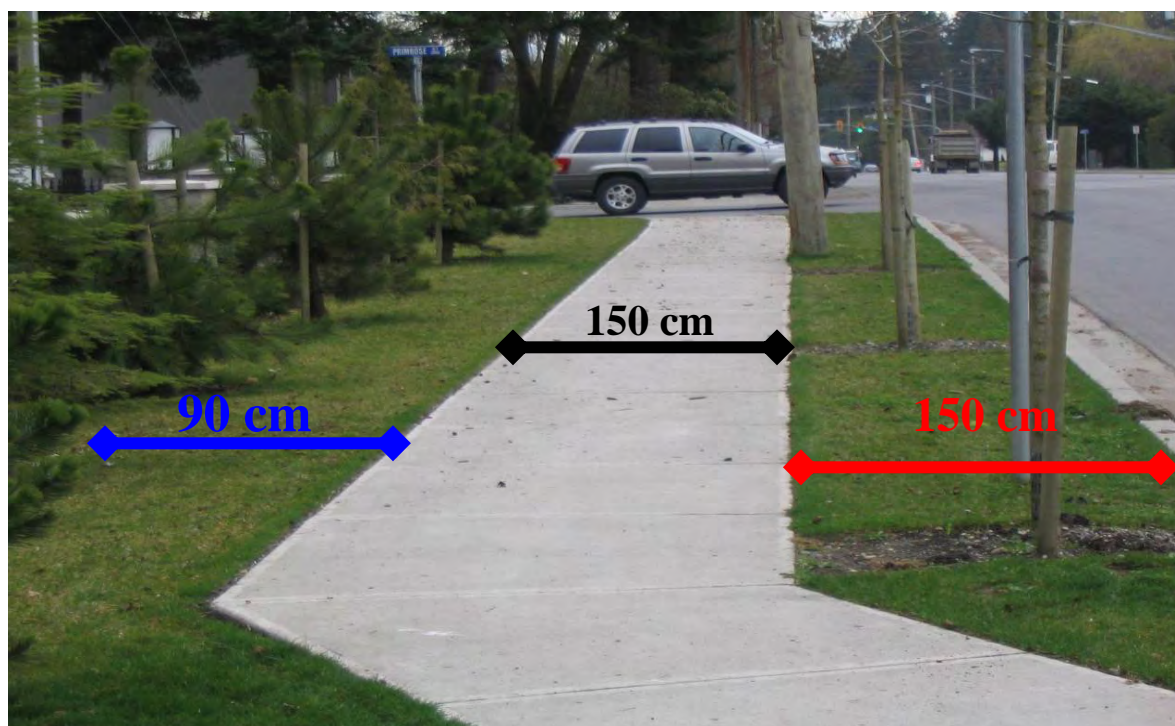


Figure 74: Wide sidewalk, poles are not obstacles.



Figure 75: Good planning near a major healthcare facility under construction. Controlled crosswalk, sidewalks on both sides of the road. Green “buffer zone” or “boulevard” between street (curb edge) and sidewalk with trees.

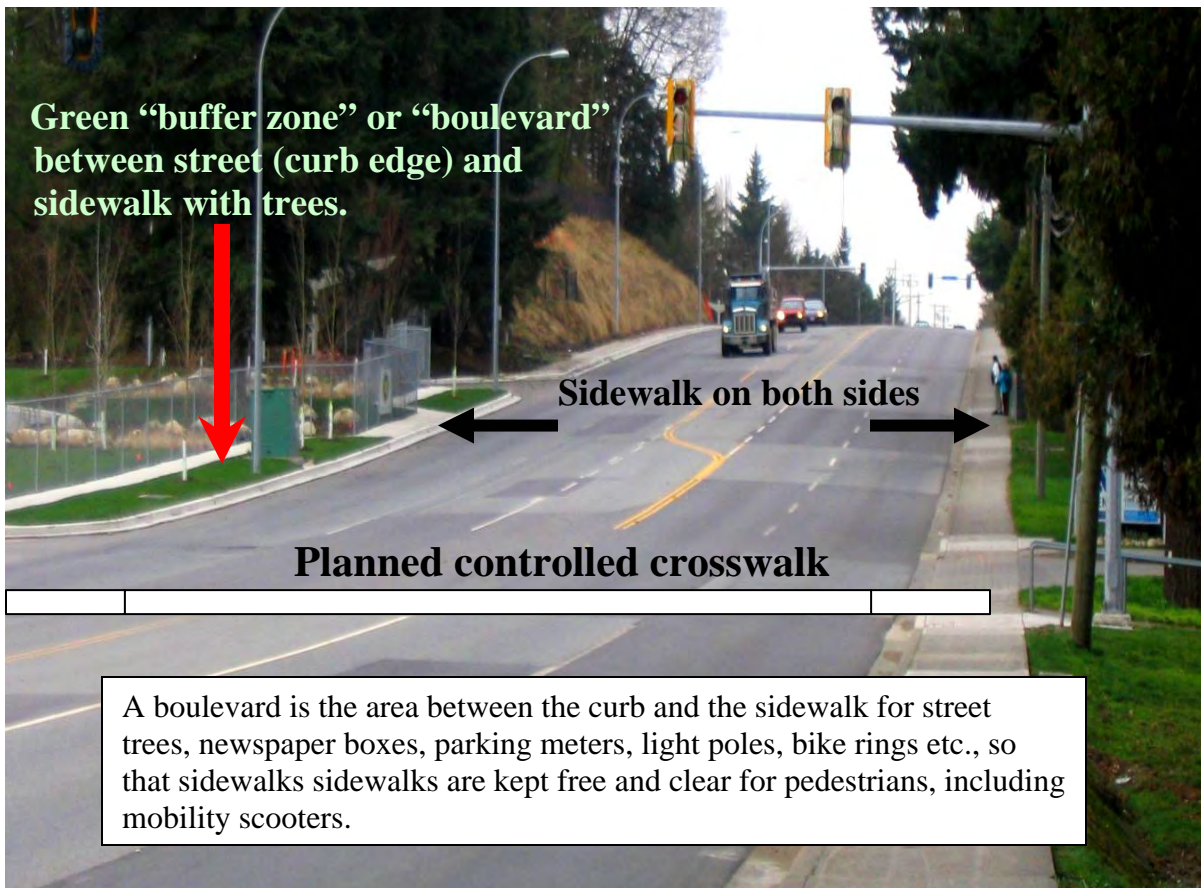


Figure 76: Wide curb cut with a gentle slope and smooth surface.



Figure 77: Older sidewalk. Widened around pole.



Figure78: Smooth, gentle slope at driveway.

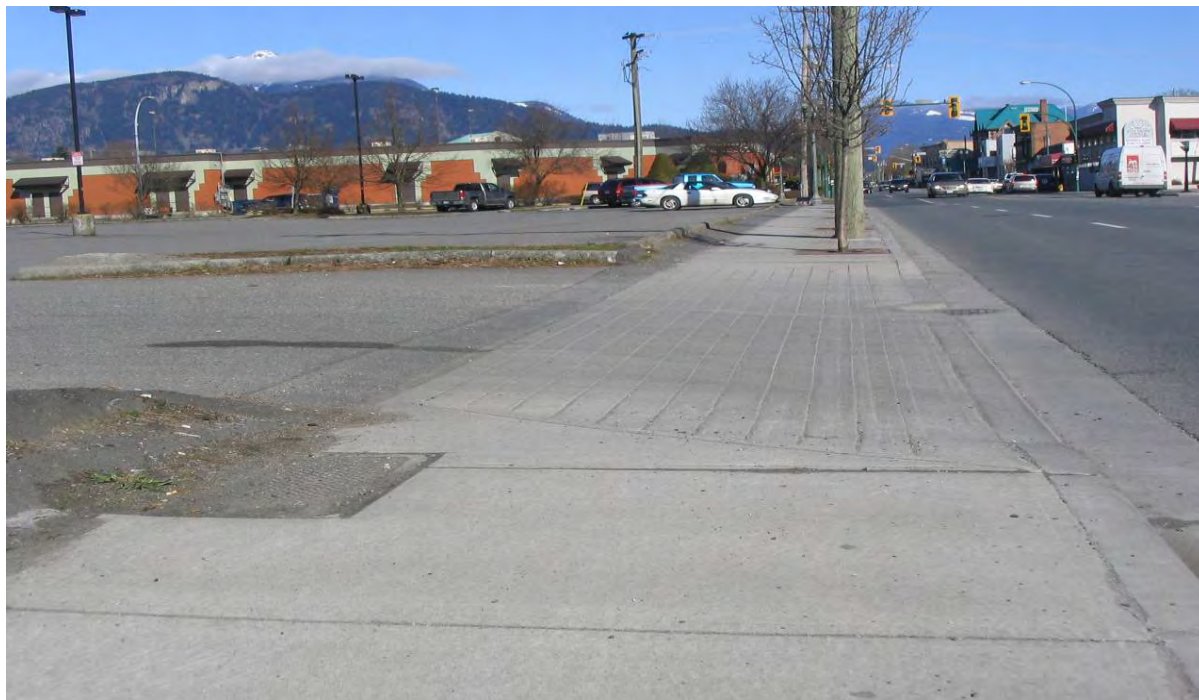


Figure 79: A mobility scooter friendly community



3.5 Scooter User Education

One of the purposes of this research project on mobility scooters was to develop a set of recommendations and draft guidelines, which will provide the basis for establishing an appropriate policy framework and educational programs in the area of mobility scooter use. This section of the report will focus on scooter education and training. Based on the research findings, a framework for the implementation of a scooter education program was developed and named “Scooter Smart”. The framework was implemented in two communities and different settings (a seniors’ centre and an assisted living facility) as part of a pilot project. This section of the report provides a summary of the “Scooter Smart” educational framework and outlines observations made during the implementation of the educational framework.

3.5.1. Scooter Smart: A framework for the implementation of a mobility scooter educational program.

A framework for scooter education and training was developed from the research findings from stakeholder consultations and scooter users themselves, as well as a review of the literature on mobility education and training (Council on the Ageing [ACT] & Able Access, 2002). The goal of the framework or model is to provide guiding principles for the implementation of a scooter education program.

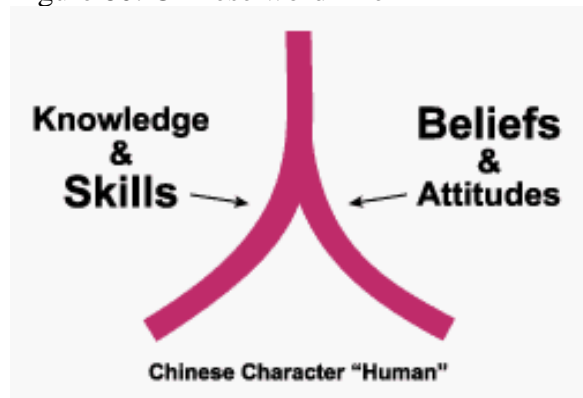
Education for mobility scooter use should be designed to help scooter users acquire the *knowledge*, *attitudes*, and *skills* they need to make informed decisions, practice healthy behaviours, and create conditions conducive to safety. The “Knowledge, Attitude and Skill (KAS)” is a well known training model and has been utilized in different contexts (Tan & Kaufmann, n.d). The “knowledge” or cognitive (thinking) component refers to the information itself and to the process of receiving information or data. The knowledge component also include thinking about the information, understanding the information, integrating the data and putting it “together” in a way that makes sense for the learner. Knowledge acquisition basically addresses the question of “what do I need to know?”

Another component of the KAS model is “attitude.” This refers to the “affective” (feeling and believing) component of learning and focuses on developing a personal awareness and belief in the information, valuing the information, and integrating the “new beliefs” in the personal value system. It basically addresses the question of “why should I do this, why is this important in my life?”

“Skills” as the third component of the KAS model refers to the development of certain behaviors or actions that will become, by repetition and practice, automatic and “unconscious” actions. Skills refer to the “psychomotor” (doing) component of learning and develop by observing other people doing the activity and practice the activity by repeating it one or more times. The skill component basically addresses the question “How do I do it?”

As depicted by the Chinese word "Ren," illustrated below, the two strokes supporting each other signify that "knowledge and skills" have to be complemented by "beliefs and attitudes." (Tan & Kaufmann, n.d.)

Figure 80: Chinese word "Ren"



The focus of mobility scooter education should be knowledge acquisition, activation and reinforcement of appropriate attitudes, and development and strengthening of skills. Scooter education should not only target and be available to current scooter users, but also include and focus on potential scooter users (those thinking of getting a scooter).

The overall goal of mobility scooter education is to provide scooter users and potential scooter users, within the context of a non-threatening learning environment, an opportunity to develop knowledge, skills and attitudes conducive to the safe operations of a mobility scooter.

Outcomes of scooter education are to a) develop safe scooter driving habits, b) understand legal and liability issues related to scooter use, and c) practice safe scooter driving skills. Participants should be able to a) understand conditions affecting travel and suitability for scooter use, b) understand the rights and responsibilities of safe scooter driving practices, c) understand the "Rules of the Road" and guidelines for personal safety and security, and d) know about different scooter types and how to maintain a mobility scooter.

The content of "Scooter Smart" scooter education can be structured in different components or "modules" (see Table 11).

Table 11: "Scooter Smart" framework: Components and content

Component	Basic content
1. Setting the Stage Overview of scooter education	Introduction Overview of the goals and content

<p>2. Health and Wellness “Is a mobility scooter right for me?” Knowledge and understanding of own suitability</p>	<p>1. Selection of mobility devices (e.g., scooters, walkers). 2. Scooter driver fitness and assessment. Highlight the essential abilities: co-ordination and strength; physical balance and endurance; vision; perception; thought processes and memory; feelings and judgment; alternative transport options in the community.</p>
<p>3. Mobility scooter safety and the “Rules of the Road.” Knowledge development. Reinforce positive attitudes.</p>	<p>How, when and where to keep self and others safe. Rights and responsibilities of scooter users Safe scooter driving practices (importance of planning and preparation; general safety principles; awareness of safe scooter practices). Road Rules (national and provincial regulations--scooter users are deemed pedestrians, the implications of the regulations). Insurance issues.</p>
<p>4. Scooter types and maintenance Knowledge development</p>	<p>Types of scooters available Scooter care and maintenance (simple routine maintenance tasks, the need for regular servicing).</p>
<p>5. Scooter users’ experiences. Integration</p>	<p>Learn from peers about what they find useful and helpful as well as challenging when using their scooters in a particular community.</p>
<p>6. Practical Session Skill demonstration and acquisition</p>	<p>The objective of the practical session is to learn and/or increase confidence in safe scooter driving skills Scooter available for session (participants can use own scooters and or local supplier may loan scooters for practical session). A general maintenance check can be done during the session. Preferably this is an outdoor session providing the opportunity of reinforcing some of the principles learned in components 1-5. Skills to be acquired include right/ left turns at an intersections; 180° turn; drive backwards; control in congested areas; maneuver between obstacles; avoid unexpected obstacles; share public space; travel up a curb ramp; travel down a curb ramp.</p>
<p>7. Integration and evaluation</p>	<p>Regroup after the practical session. A short summary of each module Open panel discussion and “question and answer” with presenters Evaluation of educational event. Opportunity for participants to network with each other.</p>

The framework is reflected in the basic program that was followed during two “Mobility Scooter Workshops” (see Figure 81).

Figure 81: Program for a mobility scooter event

Mobility Scooter Workshop PROGRAM			
Date:	Time:	Duration:	Place:
	9:30:	Welcome Introduction (10 minutes) Program Coordinator	
	9:40:	“Is a mobility scooter right for me?” Health and wellness. (10 minutes) Occupational Therapist	
	9:50:	“Let’s know the rules and scoot safe” Mobility scooter Safety and “Rules of the Road” (10 minutes) Community Safety Coordinator	
	10:00:	“Words of wisdom” Mobility Scooter User: (10 minutes)	
	10:10:	“Advice from the Scooter Industry” Mobility Scooter provider (10 minutes)	
	10:20:	Panel discussion: Questions and answers (20 minutes)	
	10:40:	Refreshment Break (20 minutes)	
	11:00:	Practical Session: Demonstration and Practice (45 minutes) (Occupational Therapist and Mobility Scooter provider with input from the other presenters) How to safely operate a mobility scooter How to safely navigate my local community Panel discussion on practical session: Questions and answers	
	11:45:	Closing and evaluation (15 minutes) Program Coordinator Let’s pull it together, What have we learned? Next steps?	
	12:00	End	

Figure 82: Flyer to promote Mobility Scooter Workshop

FREE! FUN PRACTICAL

MOBILITY SCOOTER WORKSHOP

***Get UP and RUNNING
for Spring***

**Current and potential scooter users,
please join us**

DATE:

TIME:

VENUE:

A photograph of two elderly women sitting on mobility scooters. The woman on the left is wearing a white outfit and a wide-brimmed hat, riding a blue scooter. The woman on the right is wearing a light blue and white striped shirt and white pants, riding a red scooter. They are both smiling and looking towards the camera. The background is a plain, light blue wall.

Local healthcare, road safety and industry professionals will provide information and practical advice on:

- “Is a scooter right for you ?”
- Safe scooter driving practices
- Rules of the road
- Types of scooters and maintenance
- Practical session

To **REGISTER** for this free workshop: Contact
(contact information)

Figure 83: Mobility Scooter Skills

The TEN Mobility Scooter SKILLS

1. *Turn right at an intersection*
Ensure right wheels don't touch obstacle
Ensure the turn is tight
2. *Turn left at an intersection*
Ensure right wheels don't touch obstacle
Ensure the turn is tight
3. *180° turn*
Check the person can turn their head to see where they are going.
Ensure the turn is tight.
4. *Drive backwards*
Check the person can turn their head to see where they are going.
If they cannot, check that they can use their mirror.
Ensure the person has control over the speed and steering to keep close to the line.
5. *Control in congested areas*
Ensure the person has control over speed and steering.
6. *Maneuver between obstacles*
Ensure the person has control over speed and steering.
7. *Avoid unexpected obstacles*
Check the person is alert to obstacles around him/her.
Ensure the person has control over speed and steering.
8. *Share public space*
Check the person is controlling scooter appropriately according to the needs of the people around him/her.
9. *Travel up a curb ramp*
Ensure person approaches the ramp head-on so that both wheels will be on the middle of the ramp.
Check ability to turn sharply on to the path.
10. *Travel down a curb ramp*
Ensure person checks for hazards (e.g., cars) before moving on to the ramp.
Ensure person approaches the ramp head-on so that both wheels will be on the middle of the ramp.
Ensure person has control over speed.

3.5.2 Implementation: Communities and Settings

The two largest communities were selected for the pilot implementation of the Mobility Scooter Workshops.

Community A

The community has an adult population of 97,689. It is estimated that there are about 11,361 adults with mobility problems of which about 114 (estimate) use mobility scooters or powered wheelchairs.

This workshop was promoted to “scooter users and potential scooter users” (see Figure 82 for flyer) It was specifically marketed to organizations that provide services to seniors living independently in the community. The workshop was also mentioned to individuals who had voiced an interest in the project.

The workshop in this community took place at a centrally located seniors’ centre in Community A. A fairly large hall at the centre was chosen to accommodate the participants and their scooters (if they choose to bring them to the event). Another reason to use the larger hall was to accommodate the cool and rainy February weather and to have enough space for the practical portion of the workshop. As it turned out in this case, the weather was sunny and mild (for February) and it was possible to do the practical portion outside the seniors’ centre in the parking lot and adjacent pedestrian areas.

A total of 13 individuals attended the workshop. Seven identified themselves as “scooter users” and 6 identified themselves as potential scooter users or having an interest in learning more about scooters.

Community B

This community has an adult population of 60,546. It is estimated that there are about 7,698 adults with mobility problems of which about 77 use mobility scooters and electric wheelchairs.

The workshop was done at an assisted living facility in the community. This facility has 66 units (studio, one, and two bedroom) and can house approximately 80 residents. An assisted living facility is a residence that provides housing and a range of supportive services, including personalized assistance, for seniors and people with disabilities who can live independently but require regular help with day-to-day activities (Office of the Assisted Living Registrar, n.d.). Typically, residents of an assisted living facility are more independent and more mobile than residents in residential care (nursing homes). Anecdotal evidence suggests that there are between 10 and 15 mobility scooter users in most of the assisted living facilities in the region.

This workshop was limited to only the residents of this particular facility. It was promoted to “scooter users and potential scooter users in the facility (see Figure 82 for flyer). The staff of the facility, particularly the general manager and the recreation coordinator, were very helpful in making the practical arrangements and the promoting the workshop in the facility.

A comfortable recreational room with a capacity of about 20 people was used for the workshop. It was spacious enough to accommodate 3 stationary scooters. It was planned to conduct the practical session, depending on the weather, in either the grounds (parking lots and footpaths in the garden) of the facility or in the parking garage. It turned out to be a cool and windy day and the practical session was conducted in the parking garage of the facility. This garage also serves as a “scooter parking room” for the residents.

A total of 11 individuals attended the workshop. Five identified themselves as “scooter users” and 6 identified themselves as potential scooter users or having an interest to learn more about scooters.

Presentation team

The team consisted of a coordinator, occupational therapist, road safety specialist, a scooter user, and a scooter provider. The coordinator was the same individual in both workshops. The rest of the team was different for the different communities. Most of the team members have not met each other prior to the workshop. In Community B, two road safety specialists participated, one was a police officer in full uniform.

Format of the event

The only format that was used for this pilot project was that of a workshop in small group format. The small group format allows for a more intimate and informal setting that provides more opportunities for workshop participant to interact with the presenters. Larger groups can be used for the “theoretical component” of the workshop, however the small group format appear to be essential for the delivery of the “practical component” of the workshop.

Larger formats have been used in other communities. For example a “Mobility Scooter Rodeo” was hosted by a mobility scooter supplier in Nanaimo, BC in 2007. That event was attended by approximately 100 people. (Franchise Wire, n.d.)

Information Package provided

Each workshop participant was provided with a folder with stationary and information. The information package consisted of the following:

1. Scooter information from ICBC (see http://www.icbc.com/road_safety/pdf/ts374a.pdf)
2. Brochure: Safety on Wheels: Common Sense Tips for Scooter Drivers
3. List of the Scooter Skills, “The Ten Mobility Scooter Skills” (see Figure 83)

Observations and feedback

The following remarks derive from observations made by the coordinator of the workshops and feedback received from the workshop participants and presenters.

Promotion of mobility scooter educational events

Promotion of the workshops is an important component of the educational model. It is important to clearly communicate that the target group for the educational event is both “current” mobility scooter users (power wheelchair users) and potential users. It appears that “word of mouth” is an important way to promote and to encourage potential participants to register for a workshop. To promote the workshop in a community setting, the use of existing groups for seniors and people with disabilities appears to be an effective and cost effective way. Within a facility setting (e.g. an assisted living facility), the support of facility management and staff, particularly the recreational coordinator, is vital for the successful promotion of the event.

Workshop presentation

Workshop in community A:

Feedback received from participants indicate that they evaluated the workshop as valuable and found the information to be relevant and helpful. All the participants evaluated the practical session and the information package to be either good or excellent. The highlight of the workshop was the practical session and all participants indicated that they found that to be very informative.

Some of the participants experienced some difficulty with the size of the room that was used. The hall was too big for the presentation of the theoretical part of the workshop. Even with the use of a sound system, some participants found it difficult to hear the presenters or to follow the discussions. It was also suggested that some of the presenters must speak slower and use more visual aids to communicate their message. Concerns were also raised about some presenters using too much time and not staying within the time limits of the program. Some participants expressed disappointment for not having enough opportunity and time to participate in the practical session. They wanted to “try out” some of the mobility scooters but there was not enough time for them to do so.

Suggestions to improve the workshop include using an effective sound system to address the concerns of participants with hearing impairments. It was also suggested increasing the time allotted for the practical session in order to give all participants an opportunity for more “hands-on” scooter driving.

Workshop in Community B:

Feedback provided by the participants at the workshop presented at the assisted living facility indicated that the workshop was well received. Participants indicated that they found the presentations and the practical session informative and helpful.

Using the smaller activities room for the presentations and discussion proved to be a good choice and participants were able to hear and follow the discussion well. Residents are familiar with the surroundings in the facility and found it easy to move from the activities room to the parking garage for the practical session. The residents appear to be pleased to guide the presenters to the parking garage and showed the presenters where they usually use their mobility scooters on the premises.

Presentation team

Team members were not familiar with each other and most had not met each other previously. It can be beneficial if the same team can work together for future workshop presentations.

4. Discussion and Conclusions

Two main factors prompted the need to conduct this research on mobility scooters. Firstly, the perception of an anticipated dramatic increase of scooter users due to the predicted aging of the “baby boomers” resulting in an increase in the senior (age 65 plus) population. Secondly, there was a desire expressed among stakeholders in local government, and the health and social service sectors, to enhance the understanding of scooter user patterns, and issues around safe scooter use and the fitness of scooter users. It is anticipated by stakeholders that this enhanced understanding of the “*mobility scooter phenomenon*” would result in timely and appropriate planning on local, provincial, and national levels.

One of the central questions in this research study on mobility scooters focused on the nature of a regulatory system for scooters, and the profile and user patterns of scooter users. The findings are based on a review of international regulatory systems, and an analysis of local stakeholder perceptions, scooter users and user patterns, which suggest that the “*scooter phenomenon*” is multi-dimensional. The debate on “*where and how fast scooters should operate, and scooter driver fitness*” has just started, and will continue and intensify over time as the numbers of scooter users increase. Findings in this study suggest that the scooter debate is dynamic and represents diverse and sometimes strong opposing arguments from stakeholders and scooter users alike. It was not uncommon to see participants in this study change their perceptions on issues during the course of the project. This is not a sign of indecisiveness, but rather reflects the complexity of the issues, the influence of new information, and the strong desire to find solutions that will fit the diverse needs of mobility scooter users.

The importance of scooters

The most consistent finding in this study was a high level of consensus among researchers, stakeholders and scooter users is their position on the importance of mobility scooters in maintaining and enhancing the quality of life of users. Scooters are viewed as useful assistive devices for people (of any age) with mobility problems. The findings suggest that scooters provide an important option for persons with mobility related problems. Scooters enhance the ability of users to conduct their activities of daily living and meet their social needs. Mobility scooters ultimately contribute to maintaining independence, participation in society, and quality of life.

The general sentiment from stakeholders and users is that mobility scooter use must be protected. Any changes in legislation and/or regulation should be considered very carefully with regard to the impact these changes may have on user patterns and the quality of life of users. The underlying principles that were echoed in this study were that any suggested changes to

regulations and scooter use needs to focus on enhancing scooter safety. Scooter users experience multiple difficulties in their lives and it would not be acceptable to impose any changes on scooter users that would unnecessarily complicate their functioning further. The ideal would be to devise a system that would balance the needs and wants of scooter users, with personal and community safety.

In order to develop a sufficient understanding of the “scooter phenomenon”, basic data had to be collected on a number of aspects related to scooter users themselves, including their numbers in the community and how the aspects of scooter usage are perceived by non-users. At the onset of this study in the eastern Fraser Valley, very little information existed regarding powered wheelchairs and scooters, particularly in terms of the number that are in used in the region, which type are used, the environments in which they are most commonly used, the activities they are used for, and the incidents that occur involving scooters. The findings of this study should not be generalized beyond the eastern Fraser Valley region.

The first challenge was to develop an idea of what the magnitude of the “scooter phenomenon” is in the region. It was expected that it might not be easy to estimate the total number of powered wheelchairs and scooters in the eastern Fraser Valley. An estimate of the number of scooter users in the region was made on the basis of the total population of a specific age group (2006 Census data) and the percentage of individuals in the age group with mobility related disabilities. This “formula” is offered as an option to estimate the numbers of scooter users in a community. It is acknowledged, however, that the estimate of approximately 250 to 300 scooter users in the region might err on the side of being conservative. The “baby boomer” group is now between 45 and 63 years old and the oldest of this group will turn 65 in the 2010. It is anticipated that the aging of the baby boomers will result in an increase in scooter use in the region.

In this exploratory research study, the objectives were to collect data on scooter users in the region and begin to describe who the scooter users are, where they drive their scooters, and what activities they engage in. In this context, it was important to understand what difficulties users experience when using their scooters. In summary, the groups of scooter users surveyed tended to be in their mid seventies (i.e. the middle-to-old category), single, living alone, and most were residing in assisted living facilities. More than half of the users have post-secondary education, were in the middle-income categories and described their previous work experience as professional or clerical. There were also scooter users (one in four) who had income levels that were low and have little disposable income. One in five of the respondents refused to answer the question about their income.

Health

Scooter users provided useful information about their health status and how they perceived their own health. Three in four (75%) of scooter users rated their own health as fair/poor. This rating appears to be congruent with the nature and number of chronic health problems experienced by scooter users. The prevalence of chronic diseases appears to be higher in scooter users. A high percentage (almost 90%) of users suffer from arthritis and chronic pain that is not related to arthritis. Heart, lung, hearing problems and diabetes in scooter users appears to be double what it

is in the national population. Stroke and memory related problems appear to be four times as high in the group of scooter users. About one in ten of the users indicated that they experience impaired visual functioning. Most users that gave up their motor vehicle driver's licenses because of health reasons and most (90%) users indicated that the main reason for their decision to acquire a scooter, was the onset of medical problems that impacted their ability to walk.

The findings confirm that most scooter users are aware of the fact that they experience multiple chronic health conditions and that their health status can be described as poor. This finding is congruent with the findings that the scooter users access more medications and use more healthcare services than non-users in the same age group. Scooter users (83%) experience problems with walking and need some form of human and/or mechanical assistance. About one in five users are able to walk short distances. This group also appears to be healthier, independent when compared with the group that needs assistance to walk even short distances. It was somewhat surprising to find that, in light of the poor health status of scooter users, and in spite of the fact that a number of them live in assisted living facilities, not many of them utilize support services in the community. This might be explained by the possibility that their scooters provide them with opportunities to be more self-reliant and independent to address their needs.

Scooter types and activities

Most of the scooter users (9 out of 10) in the study use a "scooter-type" assistive device. About 10% use power wheelchairs controlled by a joystick. Scooter users reported using a variety of makes and models of scooters. Most of the scooters have four wheels, have the capability of a top speed of more than 7kph and the users perceived the speed capabilities of their scooters to be "*just about right*". Most users bought their current scooters more than a year ago from local scooter vendors while 10 users acquired their scooters privately or from a "non-scooter second-hand" store. One third of the users (a number that is much higher than the numbers in the UK) acquired used, second-hand scooters. About half (54% or 28) of the users received financial assistance to acquire their scooters and paid for it with financial assistance from government agencies (e.g. Veterans Affairs or other government ministries) or extended health plans. One in five users modified their scooters with the goal to make it more comfortable by adding canopies, windshields and cane holders.

A major focus of this study was to initiate an exploration of where, and for what reasons (e.g. goals and activities) scooter users use their scooters. Findings were compared and contrasted with findings of similar studies in the UK and Denmark. In the eastern Fraser Valley, most scooter users used their scooters on a regular (daily/weekly) basis on sidewalks, on the road when crossing the road, and in shops. A third used their scooters to drive on the road on a regular basis, and one in four users use their scooter on a regular basis on bicycle paths. Most users never drove their scooters inside their homes and this finding confirms that scooters were mostly used outdoors and outside the users' residences.

Findings on goals, activities and seasonal (winter/summer) patterns of scooter users reveal that the most popular winter and summer activities for users are to go for a ride, to do their shopping and to go to the corner store or coffee shop. These activities can be considered as some of the

users favourite destinations and these outings address the fulfillment of basic needs and need for social interaction. About a third of the users use their scooters to visit friends and family year round, to go to seniors' centers and clubs, to go to places of entertainment and education such as libraries and cinemas, and healthcare services (e.g. doctor's visits, clinic, or hospital). Overall, users use their scooters more in summer than in winter. When compared with seasonal user patterns in Denmark, scooter users in the eastern Fraser Valley appeared to use their scooters more to go to the corner store/coffee shops, and to go seniors' day centres, clubs, visit the library and go to the cinema. It appears that the Fraser Valley users use their scooters more for recreational, educational, and social activities.

Findings on maintenance, storage and travel patterns of scooter users indicate that most scooter users maintain their scooter by using the services of local scooter shops (vendors) and mainly when "*something is wrong*" with the scooter. Most of the scooter users stored their scooters in designated areas of their primary residences like the garage or basement of their homes or apartments, or in a "scooter room" that is often in the basement/garage of an independent living or assisted living facility. Forty percent of the users take their scooters with when traveling longer distances and transport them by private car, special transportation (e.g. "handyDART" service or "wheelchair taxis"), transit buses and sky train. All the users who travelled longer distances indicated that they need a place to recharge their scooter's batteries.

Regulation

Perceptions of stakeholders and scooter users in the eastern Fraser Valley indicate that there is, at this point in time, little support and little appetite to embark on a dramatic change of the existing regulatory system for mobility scooters. Findings suggest that the majority of stakeholders and users would like to maintain, in principle, the current status of a mobility scooter as a "pedestrian". However, the fact that scooters have become increasingly capable of operating at higher speeds (up to 20kph), was identified as a major concern. Operating at higher speeds that exceeds that of normal walking speed (2-4kph), was perceived to be incongruent with the intended use of a mobility scooter (i.e. to assist with an individual's ability to walk). A high level of agreement was found on the need to make a distinction between the "faster and slower scooters".

There was consensus that speed should be the deciding factor and that scooters, to maintain their status as pedestrians, should operate at a lower speed (at a top speed of between 6-8kph). That means that slower scooters must abide by the rules of the road for pedestrians, which is: to only operate on the sidewalk, and only to be on the road when there is no sidewalk or when the scooter driver crosses the road from sidewalk to sidewalk. The pedestrian status also does not require registration and licensing of a scooter as a vehicle, nor is insurance or a driver's license required to operate a scooter. Scooter users who want to operate at faster speeds (e.g. 10kph or higher) should be classified as operating a motor vehicle (i.e. registered and insured), only drive on the road (not the sidewalk at a high speed) and should have a valid motor vehicle driver's license. This perception is in principle, congruent with the regulatory changes that have been made in the UK and European countries.

The scooter user survey in the region indicated that more than half (60%) of the scooter users do not have insurance of any kind to cover their scooters, however the majority of users support the idea of having insurance for their scooters. The majority (85%) of scooter users are not in agreement with any regulation for slow scooters (top speed of less than 7kph) and the regulation of the operator of a slow scooter and about half of users oppose the regulation of faster scooter (top speed more than 7kph).

The issues around a speed limit for mobility scooters on sidewalks were fiercely debated -- especially by the stakeholders in this study. There was agreement around the principle of setting a speed limit on sidewalks and recommended speed limits for other pedestrian areas like footpaths, trails and commercial environments. It was much more complicated to discern what an appropriate speed limit should be. The proponents of a speed limit suggested speed limits between normal walking speed (2-4kph) and 10kph (which is the Queensland, Australia speed limit). Setting a speed limit on sidewalks is further complicated by arguments about the difficulties of enforcement of any regulation that would set speed limits. Counter arguments include the technical information that a scooter has a dial or switch (i.e. speed governor) that can be set to a specific speed that can be inspected by, for example, a bylaw enforcement officer. Suggestions were made to develop a speed regulation and enforcement system for scooters. This implies the necessity for and development of bylaws at municipal level. It was also argued that in practice, bylaws are often only enforced when a complaint is received. Bylaws also serve the purpose of raising awareness and draw attention to the importance of following certain regulations.

Scooter users (as pedestrians) often have to travel on the road because of the lack of sidewalks. This usage raises the question of direction of travel when on the road. The rule of the road for pedestrians clearly states that scooters (as pedestrians) need to travel against traffic (facing traffic). There was no clear research finding on this issue; thus no conclusions could be drawn. No conclusive evidence could be found that suggested it is safer for scooters to drive in the same direction as traffic.

The use of bicycle lanes by scooter users sparked a debate amongst stakeholders with opposing viewpoints. It was assumed that scooters (as pedestrians) would not use bicycle lanes if a sidewalk is available. Usually sidewalks are available along bicycle lanes (with the exception on lanes in rural/farming areas). Findings indicate that in the UK 69% of scooter users drive regularly on bicycle lanes. One in four scooter users (27%) in the eastern Fraser Valley region used bicycle lanes on a regular basis and drove in the direction indicated on the lane. The main reason for this was that users perceived bicycle lanes to be more appropriate for scooter driving. Users claimed that bicycle lanes have smooth surfaces without obstacles like poles and curb cuts. Scooter users suggested that cyclists underutilize bicycles lanes in the region. Concerns raised about scooters using bicycle lanes include arguments about safety and potential congestion of bicycles lanes.

The lack of conclusive evidence on multi-use of bicycle lanes warranted a caution about the use of bicycle lanes by scooters. However, the dilemma remains whereby scooter users use the lanes and increased usage is anticipated. The difficulties encountered by scooter users on sidewalks

will continue to reinforce perceptions that bicycle lanes are more suitable and would encourage users to use bicycles lanes instead of adjacent sidewalks.

Visibility of the scooter and scooter operator was strongly emphasized throughout this study. The different requirements to increase visibility include lights, directional indicators, a horn, rear-view mirror, rear reflectors, and pole with a flag. It was suggested that scooter users must be encouraged through scooter education and awareness programs to voluntarily use the safety features.

There was agreement that scooter users could operate their scooter in ways that may endanger others, and might be impaired by alcohol and medications at times. Scooter drivers should continue to be exempted from road traffic legislation such as dangerous driving and driving under the influence of drugs or alcohol. It was concluded that these issues are serious and should be brought to the attention of scooter users and be a focus of scooter driver education.

It was not possible in this study to estimate the number of scooter incidents involving injury and/or damage to property. Two fatalities have occurred in the region; however there is no data available about other serious accidents. The main reasons for this were that police and insurance agencies keep no specific statistics on scooter incidents. Further, it appears that the majority of incidents involve minor bumps, bruises, and near misses, which, are never reported or recorded. Research findings on scooter users in the region indicate that 16 (30%) of the scooter users were involved in at least one incident. Scooter users were hit by cars and sustained injuries (one user sustained serious injuries), or fell off their scooters. It appears that most of these incidents could have resulted in fall and fractures for the scooter users involved. It should be noted that most scooter users in the survey indicated that they perceive themselves to be safe when operating their scooters.

Assessment

Findings suggest that the assessment of scooter users have two distinct, but inter-related purposes. Firstly, users are assessed as to whether they need a scooter. Secondly, they are assessed in order to determine if they are capable or fit to operate a scooter. The current practice for assessment is that scooter providers/ vendors (who recognized that they are not trained to assess scooter user fitness) will engage in an initial immediate evaluation of how a prospective scooter purchaser, presents her/himself. If a prospective buyer's fitness is questioned on this first evaluation, the provider will encourage the person to consult with her/his physician and/or other healthcare providers (e.g. occupational therapist or physiotherapist) prior to the final purchase. Scooter users who receive financial assistance to purchase their scooters are usually required by the funding agency to undergo an assessment. These assessments are usually undertaken by physicians, occupational therapists, physiotherapists or rehabilitation specialists.

In terms of a needs assessment, most stakeholders argued in favour of a system where scooter users need to provide some form of documentation that they are in need of a mobility scooter. The intention of such a system is not to determine the scooter users "*fitness to drive*", but rather initiate a consultation with a healthcare provider (e.g. family physician, occupational therapist).

What might transpire in such consultations, is a discussion of whether a scooter is the most appropriate assistive device for the scooter user, or if there should be no scooter use. This assessment may also provide an opportunity for the healthcare provider to discuss with the users additional measures to maintain and enhance mobility and to make referrals to other applicable professionals and services and scooter education.

The outcome of such a consultation would be a document (i.e. a completed form) that indicates that the scooter user/potential user has a medical and or other condition(s) that negatively impacts her/his mobility. The scooter user would then present this medical certificate to a local registration office to obtain a scooter permit that would be valid for a certain time period (e.g. two years). The registration component refers to the scooter user rather than to the scooter itself. This proposed system could be compared to the already existing system to obtain a handicap parking permit in British Columbia that follows similar principles and procedures. The intention would be for only scooter permit holders would be permitted to use their scooter on sidewalks without proof of a vehicle driver's license.

The suggested system of "*proof of need*" assessment is a form of regulation and should be measured against an earlier stated caution against over-regulation or regulations that pose a hardship on scooter users. It should be balanced against the potential benefits for the scooter user. Benefits may include an increased ability of the scooter users to make informed decisions about scooter use, and an opportunity for healthcare providers to appropriately advise scooter users when a scooter may not be the most appropriate choice for her/his mobility needs. It might also provide an opportunity for healthcare providers and the administrators of the registration system to encourage scooter users to utilize scooter education opportunities in the community. The registration system will make it possible to monitor the number of scooter users in a community and make it possible to identify scooter users in case of an emergency or theft of the scooter.

Assessment: Fitness for use

Related to the assessment of need, is the issue of assessing the fitness of scooter users to operate a scooter appropriately. This is sometimes referred to as a drivers' license for a scooter user. The subject of assessment of scooter users and their fitness to operate a mobility scooter was debated by stakeholders. Strong support was expressed, especially from stakeholders in the healthcare field, for a mandatory or voluntary assessment system for scooter users. Stakeholders debated various aspects of such an assessment system including the type of indicators which indicate fitness to operate a scooter, and the need for different criteria for slower and faster scooters. It was suggested that a scooter users fitness assessment should include an assessment of vision, hearing, reflexes and reaction time, judgment and cognition, medications taken, ability to maneuver the scooter, and previous motor vehicle driving experience.

Some stakeholders offered arguments against the assessment of fitness of scooter users and suggested that assessment might be considered discriminatory and an imposition for fitness-to-drive criteria to be placed on scooter users while pedestrians and cyclists are exempted. It was also argued that a driver's test for scooter users, might deter current and potential scooter users to

use their scooters. Scooter users might attempt to avoid the testing procedure, and the stigma of failing the test, by not using their scooters. This avoidance might lead to further reduction of mobility levels of people with disabilities (of all ages) and to further isolation. No mandatory assessment of driver fitness has been implemented in the UK, Queensland, Australia, or any other jurisdiction. Most scooter users (60%) in the regional survey were opposed to mandatory assessment, testing, and a driver's license for scooter users.

Training

There was a high level of agreement amongst stakeholders and scooter users that scooter driver training is essential for scooter users. However, stakeholders were divided as to whether training should be mandatory or voluntary. Findings suggest that scooter training should not only focus on current scooter users, but also include potential scooter users. The ideal is for potential scooter users to take some form of initial training before they make the decision to acquire a scooter. It was found in this study that scooter vendors in the region provided valuable initial training for scooter users at the point of sale. It should be noted that not all users acquire their scooters from scooter shops (vendors) and may not receive any instruction at the point of sale.

Scooter training should include knowledge and skills on safe operation of the scooter, regulations and rules of the road for scooters, insurance, operation in different pedestrian environments, scooter maintenance and storage, medication use and the safe operation of a scooter. Training should also include a "*Code of Courtesy*" that will capture the nature of "*good scooter driving behavior and scooter driving etiquette*", and a practical component that would include basic safe maneuvering of a scooter.

Based on the findings, a scooter education/training structure or model, named "*Scooter Smart*" was developed by the UFV Centre for Education and Research on Aging (CERA) and implemented a scooter education pilot project in two communities in the region. Preliminary findings suggested that the proposed model for scooter education could be used to guide learning activities for scooter users. In order to refine the model and evaluate effectiveness, the model would be subjected to more research. A scooter users guide was developed to accompany the scooter education model. The user guide would be further refined and research would be conducted to determine its effectiveness.

Context

Scooter use does not occur in a vacuum, but in an environmental context. Most scooter users used their scooters outside their residences, for a variety of activities. Users operated their scooters on sidewalks, on the roads when there are no sidewalks or cross the road, on bicycle lanes, and in pedestrian environments like parks, trails, and shopping areas. Stakeholders and scooter users commented extensively on the "scooter context" and identified several contextual factors that could be beneficial and detrimental to scooter use.

One of the issues that received significant comments was the concern with the sidewalks in communities in the region. Most (83%) scooter users indicated that they are forced to drive on the road because there are no sidewalks available and/or insufficient curb cuts. Most scooter users and stakeholders (i.e. representing all the communities involved in the study) raised concerns about the state of the sidewalks in all the communities surveyed. Concerns include steep curb cuts, uneven surfaces, utility poles on sidewalks, construction on sidewalks, placement of the buttons to activate the pedestrian crossing lights, difficulty to maneuver scooters at crosswalks on raised traffic islands or “pork chops”, and insufficient time to safely cross at a controlled crossing. Examples of sidewalk concerns are presented in section 3.4 of this report to illustrate some of the challenges experienced by scooter users in navigating sidewalks and roads. This section of the report also provides examples of sidewalks and roads that reflect good planning and creates a context that is conducive to safe scooter use.

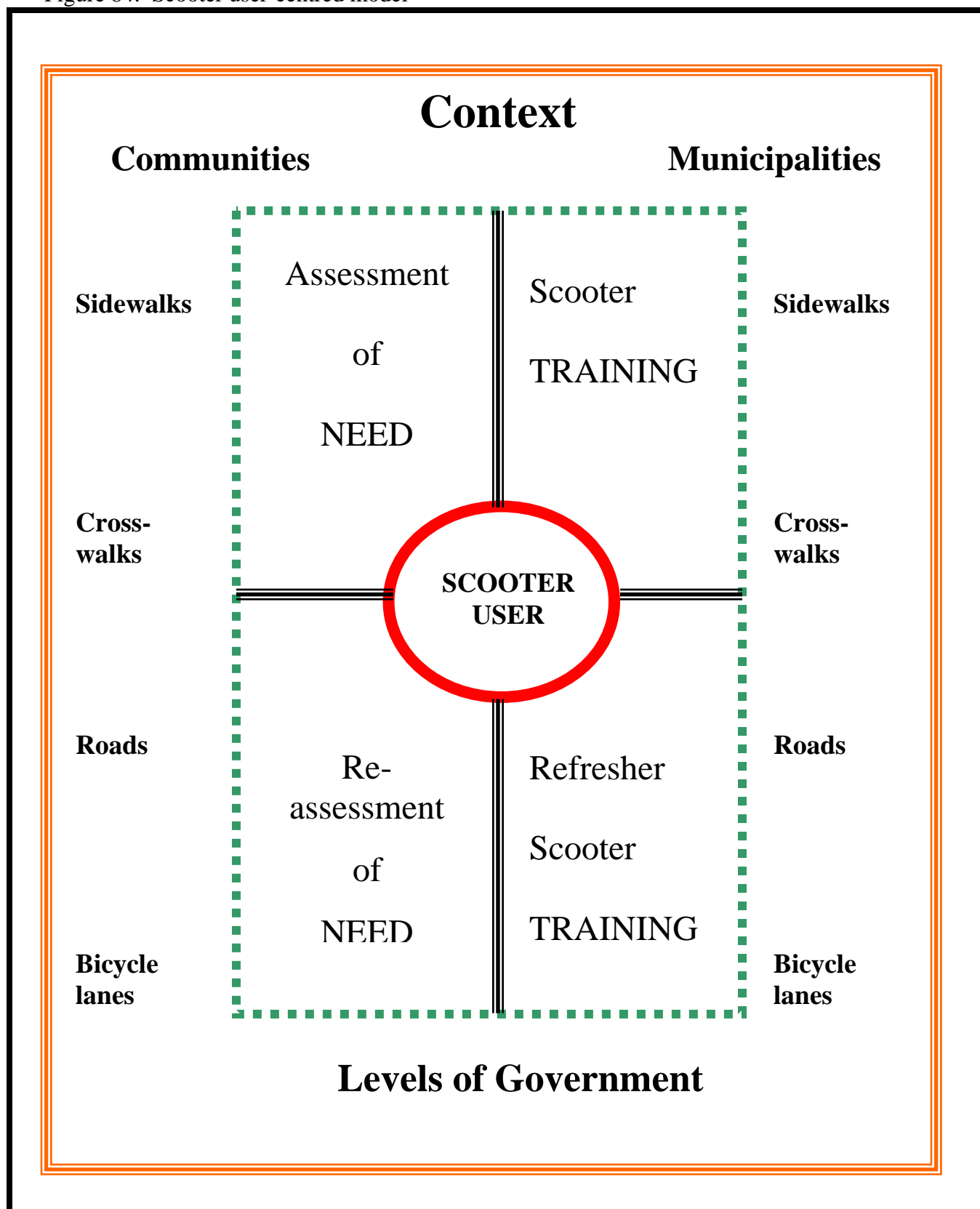
The development and maintenance of a context for scooter drivers has become the responsibility of the entire community, including local, provincial and federal government. The majority of stakeholders held this view, and further suggested that the role of government is necessary for the safe and comfortable operation of scooter use.

Local government in particular should be required to create and maintain the walkability of communities and to ensure that the community is “scooter friendly.” In the future, city planners and engineering departments will need to anticipate higher scooter and pedestrian use in certain areas and plan accordingly. Communities will need to have zoning bylaws that will promote appropriate scooter routes in the communities – especially in areas where there are a higher concentration of scooter users (e.g. around retirement communities, seniors centers and health care facilities). Provincial governments need to plan for the increase in scooter traffic and set standards for sidewalk widths and for external storage facilities. It appears important for the provincial government to consider amendments to provincial building codes in order to be more responsive to the needs of scooter users.

Concluding remarks

In conclusion, the findings and discussion point in principle to the need for a “Scooter user-centred model”. The model is premised on the belief in the importance of mobility scooters, and that scooters are fundamental to maintaining and enhancing users’ quality of life. Scooters enhance the ability of users to fulfill the activities of daily living and this includes their social needs. Mobility scooters ultimately contribute to the users’ ability to maintain independence, participation in society and quality of life. The model is graphically represented in Figure 84.

Figure 84: Scooter user-centred model



5. Recommendations

The overarching recommendation for scooter use is that the communities of the eastern Fraser Valley need to implement strategies to ensure the accommodation of an increase in scooter use in the communities. Strategies should ensure the safe and comfortable use of scooters in the communities by scooter users themselves, as well as for unmotorised pedestrians of all ages. The following recommendations suggest actions that will assist in creating scooter friendly communities.

1. Maintain current status as a pedestrian.

It is recommended that a mobility scooter (including a powered wheelchair) maintain the current status as a pedestrian. This means that a scooter, like an unmotorised pedestrian, can only operate on the sidewalk, and only be on the road (or bicycle lane) when there is no sidewalk or when the scooter driver crosses the road from sidewalk to sidewalk. Congruent with the rules of the road for pedestrians, it is recommended that scooters continue to travel against the flow of traffic (i.e. facing traffic). When using a bicycle lane and when there is no sidewalk, scooters must travel with the flow indicated on the bicycle lane.

2. Speed limit on sidewalks of 8kph

It is recommended that municipalities in the eastern Fraser Valley investigate the possibility of developing a bylaw that will set a speed limit for mobility scooters/powered wheelchairs on sidewalks at 8kph.

3. Pilot project: Assessment of need and registration of scooter users

It is recommended that one or more of the communities in the eastern Fraser Valley undertake a pilot project for a period of two years to test the efficiency and effectiveness of a scooter user registration system based on the users' need for scooter use. This proposed registration model does not refer to the assessment of scooter user fitness, neither does it refer to the registration of a mobility scooter/powered wheelchair as a vehicle. The proposed model is a variation of the model used in Queensland, Australia and resembles the BC system of obtaining a disability parking permit. The registration model includes two steps:

Step 1: The main feature of the model is that scooter users need to obtain a certificate from a healthcare professional (physician, occupational therapist, physiotherapist, registered nurse or social worker in a health care setting) that certifies that the scooter user needs a mobility scooter/powered wheelchair. (Note: This would not be a document that certifies that the scooter user is fit to operate a scooter/powered wheelchair.)

Step 2: The scooter user presents her/his certificate, at no cost to the scooter user, to the office of a local municipality and receives a scooter permit. A scooter permit will be valid for a period of two years, when it needs to be renewed.

4. Implementation and research of the “Scooter Smart” scooter education program.

It is recommended that the Scooter Smart education program be implemented in the communities in the region. Implementation should be accompanied by further research into the program’s effectiveness.

5. Development of scooter friendly cities in the eastern Fraser Valley

It is recommended that the local governments in the communities request their Transportation Advisory Committees to advise local municipalities on creating walkable and scooter friendly communities with specific attention to the improvement of sidewalks in all communities.

6. Research on multi-use of bicycle lanes.

It is recommended that local governments in the region commission further research on multi-use of bicycle lanes and specifically the operation of mobility scooter/powered wheelchairs on bicycle lanes.

7. Data collection on mobility scooter incidents.

In the absence of a data collection system on accidents and incidents where scooter are involved, a system should be developed by law enforcement agencies and insurance industry to collect and store data on mobility scooter/powered wheelchair incidents.

8. Further research on scooter use

It is recommended that the research on mobility scooters be expanded to include other communities in the province of British Columbia.

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APPENDIX

“Scooter Smart” Mobility Scooter User Guide.

APPENDIX

“Scooter Smart”
Mobility Scooter
User Guide

