

# **AGING DRIVER STRATEGY 2006-2010**

*Prepared by*

**CCMTA's Aging Driver Task Force**

*Prepared for*

**CCMTA's Standing Committee  
on Road Safety Research and Policies**

**and**

**CCMTA's Standing Committee  
on Drivers and Vehicles**

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## FOREWORD

In December, 1998, the Canadian Council of Motor Transport Administrators (CCMTA) established a task force to undertake a review of licensing policies, standards and procedures for older drivers, The Aging Driver Task Force comprised joint membership from two Standing Committees: Driver and Vehicles; and Road Safety Research and Policies. (See Appendix A for Task Force Terms of Reference.)

The task force was developed in response to emerging demographic and social changes in Canada, with their resulting potential impacts on drivers and road safety.

In 2000, a project group developed an Aging Driver Strategy to provide a framework for future work to be carried out by CCMTA and the Canadian jurisdictions responsible for road safety, driver licensing and administration.

Areas of focus identified in the 2000 Aging Driver Strategy were:

- ▶ Infrastructure/Vehicles - better design with emphasis on consistency and simplicity;
- ▶ Medical - clearer reporting guidelines for physicians; education of physicians on mature driver issues;
- ▶ Alternative Transportation - strong lobbying for mobility options;
- ▶ Enforcement - tools to help police report drivers; education of police on mature driver issues;
- ▶ Legislation – promotion of conditional licensing and assessment of drivers throughout the licence lifecycle;
- ▶ Public Education/Awareness –ongoing training programs and provide incentives; reaching drivers at right time with appropriate information on their limitations; and
- ▶ Research/Monitoring - valid and reliable screening and assessment methods.

In subsequent years, new research, developments in medicine and technology, and an increasing focus on medical fitness and functional assessment have provided material to update and strengthen the original Strategy.

The 2007 CCMTA Aging Driver Strategy builds on:

- ▶ findings and conclusions of the 1999 CCMTA Mature Drivers Workshop, held in Ottawa, which formed the basis for CCMTA’s 2000 Aging Driver Strategy;
- ▶ findings of the Aging Drivers Forum, held in Austin Texas in March 2006, a joint project of CCMTA and the American Association of Motor Vehicle Administrators; it featured a CCMTA-hosted one-day session focused on recent research and best practices, and their impact on the Canadian driving environment;
- ▶ recent research from other Canada and other jurisdictions; and
- ▶ conclusions of the November 2006 CCMTA Aging Driver Special Session held in Ottawa with the CCMTA Aging Driver Task Force and invited stakeholders.

The Strategy provides a framework to support jurisdictions in developing plans and programs to support safe mobility for older Canadians.

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## 1. INTRODUCTION

Every driver is an aging driver, but as people enter their sixth decade, many begin to experience changes to their physical, sensory and cognitive abilities that may one day affect their ability to drive. These changes vary greatly from individual to individual, can be cumulative, and generally worsen over time. This awareness is fundamental to informing development of policies and programs to help keep aging drivers safely mobile for as long as possible.

The population 55 and over in Canada is growing faster than any other age group, as members of the baby boom generation move toward their senior years. Within 10 years, a significantly large cohort of the population will reach 55. By 2031, projections show that people 55+ will account for 23-25% of Canadians, nearly twice the proportion in 2005.\*

The fastest growth in the seniors population is occurring among the oldest Canadians. In 2006, more than 520,000 Canadians were 85 years of age or older – over 20% more than in 2001 and over 260% more than in 1981.†

A major long-term challenge facing all Canadian jurisdictions in the coming years will be meeting the transportation needs of this aging population. This will require both regulatory and non-regulatory approaches. Driver testing, assessment and licensing alone will not address the many issues surrounding the mobility needs of seniors. Licensing programs can only address road safety issues.

Seniors do not necessarily want to drive. They do, however, want to be fully independent, which can only be meaningful if Canadian governments support affordable and convenient transportation alternatives for those who can no longer drive, or who can only drive under certain circumstances. In rural and remote northern areas, this need is critical. Loss of driving privileges without viable alternatives can result in considerable personal hardship, increased isolation and likelihood of poor health, with social and economic costs to society as a whole.

### 1.1 PURPOSE

This Strategy has been developed to advance the vision of CCMTA's Aging Driver Task Force to support safe, sustainable mobility for older Canadians.

### 1.2 USE OF THIS DOCUMENT

The Strategy is intended as a resource for policymakers, program administrators and other stakeholders concerned with the safe mobility of Canada's aging population. It is meant to be freely shared, to serve as a framework for planning and program

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\* Adapted from "Driving Characteristics of the Young and Aging Population, 2000 – 2004," Joseph Dunlavy, Transportation Division, Statistics Canada.

† Statistics Canada

development and as a tool to help engage the support of partners.

### 1.3 STRATEGY FRAMEWORK

The Strategy is based on the following principles:

1. Fitness-based Assessment
2. Multi-modal Planning
3. Evidence-based Policies and Programs
4. Partnerships and Collaboration

<b>Framework for the CCMTA Aging Driver Strategy (2007)</b>			
<b>Fitness-based Assessment</b>	<b>Multi-modal Planning</b>	<b>Evidence-based Policies &amp; Programs</b>	<b>Partnerships &amp; Collaboration</b>
Develop tools for assessment that: <ul style="list-style-type: none"> <li>▶ are based on functional ability, not age</li> <li>▶ address needs of licensing agencies, individuals, seniors' groups, families &amp; health-care professionals</li> <li>▶ help identify opportunities for remediation where appropriate</li> </ul>	May encompass: <ul style="list-style-type: none"> <li>▶ education</li> <li>▶ licensing</li> <li>▶ monitoring and enforcement</li> <li>▶ rehabilitation</li> <li>▶ transportation alternatives</li> <li>▶ infrastructure design, e.g, roads, signs, signals, intersections</li> <li>▶ car design</li> <li>▶ community and land use design</li> </ul>	Keys are to: <ul style="list-style-type: none"> <li>▶ develop policies and programs based on the best available evidence and on proven best practices</li> <li>▶ address aging realities, not myths</li> <li>▶ identify, and promote awareness of, proven resources</li> <li>▶ define, and plan to meet, key research needs for the coming years</li> </ul>	Promote: <ul style="list-style-type: none"> <li>▶ partnerships and collaboration for: planning, policy and programs</li> <li>▶ Mobility Action Plans, to be developed by and coordinated among all levels of government</li> </ul>

### 1.4 PRIORITIES

In November 2006, the Aging Driver Task Force identified the following five areas as having the highest priority for action:

1. **AWARENESS BUILDING:** Ensure target groups (families, health-care providers and seniors' organizations), as well as the wider public, are knowledgeable about the issues by disseminating accurate, up-to-date information through proven, user-friendly public education programs.
2. **RESOURCE NETWORKS:** Develop community-based networks and coalitions consisting of public and private partnerships that offer facilitation, counselling and mediation resources for senior drivers and their families. (See Appendix B for research resources.)

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3. **PLANNING & POLICY PARTNERSHIPS:** Develop and maintain effective, collaborative partnerships across all jurisdictions that include licensing agencies, key stakeholders (health professions, law enforcement, seniors' groups) and private citizens. (See Appendix C.)
  4. **LEADERSHIP:** Identify and recruit energetic leaders from both the public and private sectors to assume responsibility and promote the vision and its associated strategies in each jurisdiction and across Canada.
  5. **ASSESSMENT FOR CONDITIONAL LICENSING:** Exploration of conditional licensing based on individualized functional driving assessment as an option for drivers with physical (but not cognitive) impairments.

### **1.5 POTENTIAL PARTNERS**

Numerous organizations are involved with seniors' wellbeing and safety at the federal, provincial/territorial, and local levels. Their partnership and support is critical to the successful implementation of appropriate strategies for senior drivers.

#### **Government policymakers and program administrators include:**

- ▶ Federal government departments:
  - Transport Canada
  - Department of Veterans Affairs
  - Health Canada – Division of Aging and Seniors
  - National Advisory Council on Aging
  - Public Health Agency of Canada
    - Health Promotion
    - Chronic Diseases
- ▶ Transportation Association of Canada (TAC)
  - Chief Engineers' Council (CED)
- ▶ Provincial/territorial and local government departments responsible for:
  - Seniors issues and programs
  - Health and safety
  - Policing
  - Driver licensing
  - Road safety
  - Transportation
  - Civic infrastructure and planning
- ▶ Multi-level government organizations:
  - CCMTA / AAMVA (US)
  - Federal-Provincial-Territorial Ministers Responsible for Seniors
  - Federation of Canadian Municipalities (FCM)
- ▶ US government agencies:
  - DoT: National Highway Traffic Safety Administration (NHTSA)
- ▶ Law enforcement agencies

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**Non-government partners include:**

- ▶ Research agencies
  - Universities' centres on aging/seniors
  - Canadian Driving Research Initiative for Vehicular Safety in the Elderly (CanDRIVE)
  - Traffic Injury Research Foundation (TIRF)
  - Canada Safety Council
  - US Transportation Research Board (TRB) Committee on Aging and Mobility
- ▶ Seniors advocacy groups
  - Canada's Association for the Fifty-Plus (CARP)
  - Federal Superannuates National Association (FSNA)
- ▶ US NGOs for seniors transportation, e.g., The Beverly Foundation, the Community Transportation Association of America (rural focus)
- ▶ Community service organizations for seniors, e.g., Silver Threads, Golden Age
- ▶ Health support organizations, e.g., Alzheimer's Association
- ▶ Driving organizations
  - Canadian Automobile Association
  - Provincial automobile associations: Traffic Safety Foundation
- ▶ Physicians and health professionals and their professional and regulatory organizations
- ▶ Insurers
- ▶ Automobile manufacturers
- ▶ Families
- ▶ Individuals

## **2. DRIVING ISSUES**

As drivers age, they experience changes in their physical, sensory and cognitive abilities that can affect their ability to drive safely. Many medical conditions – though generally not cognitive ones – may be able to be adapted for through equipment, driver remediation or conditional licensing. Because the aging process varies from person to person, the correct measure of fitness to drive is functional ability, not age.

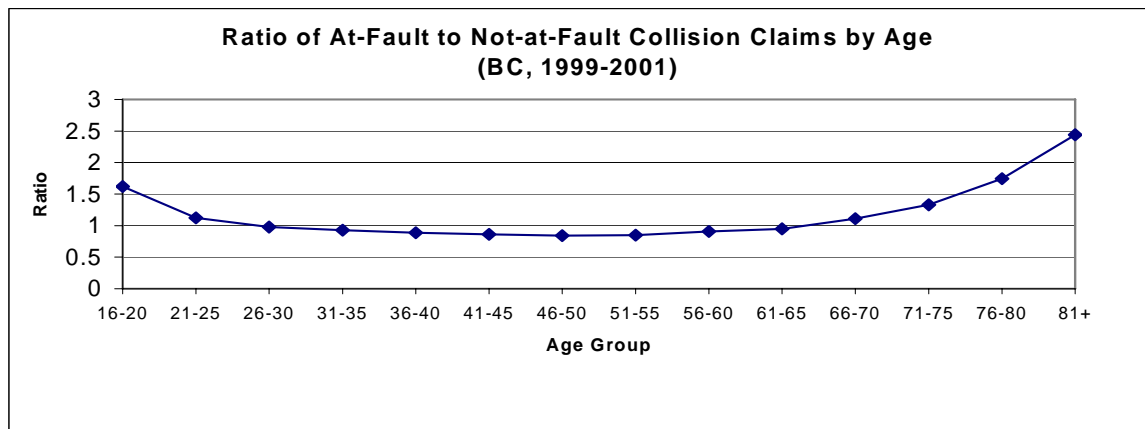
### **2.1 DRIVER IDENTIFICATION**

Many aging drivers restrict their driving voluntarily. Despite that, older drivers are involved in a disproportionate number of at-fault crashes.

The following chart shows the ratio of at-fault (50% liable) to not-at-fault crash claim incidents. Drivers 16-20 have more than 1.5 times as many at-fault as not-at-fault claim incidents, while drivers in the 30 – 65 age group have lower-than-average at-fault claims. About age 70, the rate of at-fault claims begins to rise, climbing to 2.5 for the group 81 and older.\*

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\* Source: Insurance Corporation of British Columbia, Issues Concerning the Safety of Older Drivers, 2002.



The challenges associated with identifying at-risk older drivers are not new, and many agencies in the public and private sectors are already working to address them. What is changing is the extent of the issue. Baby boomers, which represent the largest demographic cohort in the country’s history, are moving into their senior years. This group holds more drivers’ licences than did previous generations. They are expected to drive more frequently and for longer distances than their parents. They are healthier and more active than previous generations, and many will continue to work past the traditional age of retirement.

However people become more dissimilar as they age. Functional issues associated with aging can start as early as age 50, or develop much later. Many factors affect an individual’s ability to drive, including general level of health and fitness, medications, acute, chronic and progressive conditions such as stroke, heart disease and diabetes (conditions can be multiple and cumulative), the severity of the disease, the level of medical care and patient compliance with, and response to, treatment.

Despite rapidly evolving knowledge in the fields of assessment, crash predictability and remediation, it is expected that most Canadians will outlive their driving life.

In order to identify drivers whose changing abilities affect their ability to drive, a multi-sector strategy is needed, a broad and collaborative approach involving the medical profession, governments, private and community organizations, and families.

### **Barriers to identifying senior drivers at risk**

The need to balance public safety with the individual “right to drive” involves addressing a number of societal realities and attitudes:

- ▶ a limited public-transportation infrastructure, especially in rural and remote communities,
- ▶ more seniors “aging in place” in the suburbs, where amenities are not close at hand,

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- ▶ smaller families with dispersed children mean many seniors do not have family support to monitor their driving ability or help with transportation,
  - ▶ seniors being more active – volunteering, and working longer to support their increased life expectancy, providing child care for grandchildren,
  - ▶ the attitude that a driver’s licence represents freedom, independence and mobility,
  - ▶ a sense of identity, belonging and status attached to the ability to drive,
  - ▶ an implied connection between holding a driver’s licence and being mentally and physically fit,
  - ▶ the fact that people with cognitive impairments may lack the ability to self-assess,
  - ▶ physicians are reluctant participants in the screening process, even in jurisdictions with mandatory reporting;
  - ▶ in some communities it is difficult for people to get a general practitioner;
  - ▶ Canadian jurisdictions depend upon self-declaration by drivers as the major screening tool for those under 75;
  - ▶ there are few validated off-road screening tests available; and
  - ▶ there is a low awareness in the driving public of the effect of aging on driver fitness.

### **Issues for Licensing Authorities**

While better identification of at-risk older drivers will have a positive impact on road safety, it will also impact licensing authorities’ business processes. Jurisdictions will need to review business processes, and consider how to accommodate procedures related to aging drivers. This would include assessment, testing, conditional licensing practices and development of public information.

## **2.2 LICENSING MAINTENANCE: PROGRAM ELEMENTS**

### **Screening**

A system of practical and effective screening must be developed for potentially dangerous drivers with high-driver-risk medical conditions such as dementia.

Some jurisdictions (e.g., BC, Quebec) have developed guides to help physicians assess their patients’ ability to drive. In addition, CanDRIVE is a national research project that seeks to develop a clinical decision rule for physicians to identify at-risk drivers. One of the goals of the program is to find a way to extend the length of time that older drivers can drive. CanDRIVE will examine both the effectiveness of retraining programs and the use of customized or restricted licensing for older drivers who might automatically have had their licence revoked.

Licensing authorities could use the results of this research to develop a screening tool that may even be adapted for use by non-health professionals, such as trained licensing staff. This can assist with the initial screening of at-risk drivers (including drivers with dementia) in need of further assessment.

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## **Enforcement**

Law enforcement agencies may be able to assist with identifying at-risk drivers, although many police services are currently facing workload challenges. The US National Highway Traffic Safety Administration (NHTSA) has developed a 3.5-hour course for police officers on how to interact with older drivers. It focuses on topics such as how to recognize impairment, why zero tolerance is necessary when issuing violations and how to refer potentially unfit drivers to licensing agencies. Jurisdictions can make their police forces aware of this resource. .

## **Rehabilitation**

The importance of rehabilitation of drivers with skills deficiencies cannot be overemphasized. There are few rehabilitation programs for Canadian drivers, although studies have demonstrated their utility in maintaining mobility.

Occupational therapists that are trained in driver rehabilitation understand the critical demands of driving and how our ability to move about our community affects the quality of our lives. Rehabilitation specialists such as these have the skills to evaluate an individual's overall ability to operate a vehicle safely, and, where appropriate, to provide rehabilitation to strengthen skills used in driving. However, currently lack of research and standardized evidence, as well as a shortage of formal training courses for rehabilitation practitioners, are barriers to greater use of such specialists. Canada's only formal course in driver assessment is at McGill University ([www.autoeduc.ca](http://www.autoeduc.ca)).

This is an area that holds promise. Occupational therapists could play an increasingly important role in assisting licensing agencies with programs and policies for drivers with functional impairments. They could help individuals make a smoother transition from driving to using other forms of transportation. In doing so, they would help people maintain their autonomy, independence, and sense of worth.

Potential impacts on renewal periods and follow up would need to be taken into consideration by licensing authorities.

## **Education**

The private automobile is the preferred mode of transportation for most people, of all ages. Educating older adults about the risks and alternatives of continuing to drive can help them to make informed choices.

For those who can continue to drive there will be a need to improve the driving environment and provide driver education and training where appropriate. Several governmental and private sector organizations have developed educational programs to promote safer driving practices by older adults. Programs employ various formats, including classroom instruction, videos, brochures, and workbooks. Any program designed to influence behaviour should be validated and reviewed periodically to ensure that it is attaining its goals and remains current.

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## Restrictions

Like the rest of the driving population in Canada, seniors depend on their private vehicles to meet their transportation needs.

Several Canadian jurisdictions have conditional licensing programs. Such a program can address the individual abilities of drivers and provide an alternative to an outright ban on driving. The goal of such a program is to help drivers maintain mobility for as long as it is safe to do so. Examples of conditional licensing include wearing of corrective lenses, daylight driving only and restrictions driving at peak traffic times and on highways. In addition, conditional licences can be issued for shorter terms, for example, they may be issued for only one year and require the driver to return for reevaluation and/or retesting.

Currently opinion is polarized on the merits of conditional licensing. Some studies have shown that the sector of the older population that drives less than 3,000 km annually accounts for 95% of the accidents suffered by this group of drivers.\*

## Assessment

Physicians, geriatricians and other health-care providers will continue play a key role. All jurisdictions have a medical-review process and nine Canadian jurisdictions currently have mandatory medical reporting requirements for physicians. Physicians and medical researchers will continue contributing to road user safety and licensing authorities and will need to continue to work with such agencies and their representatives. Physicians across Canada have access to the Canadian Medical Association (CMA) Guide for Physicians, “Determining Medical Fitness to Operate a Motor Vehicle”, which was prepared to help physicians determine whether their patients are medically fit to drive. The guide, last updated in December 2006, makes clinical recommendations to treating physicians on medical fitness to drive, and serves as a valuable resource for medical review staff at licensing authorities.

To better integrate physicians into the evaluation process, we need to educate them on the role they can play, and expose them to a greater appreciation of the importance of this role to the wellbeing of their patients.

Physicians and other health-care providers also need reliable information on how to deal with situations concerning older patients and their driving. They need access to resources such as assessment tools, referral agencies, and information materials for the older patient and their families.

## 2.3 LICENCE CESSATION

Giving up one’s driver’s licence can be one of the most significant events in an individual’s life. Just as a licence has come to symbolize a person’s independence and

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\* <http://www.verkeerenwaterstaat.nl/kennisplein/uploaded/AVV/2007-02/346831/Low%20mileage%20bias.PDF>

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acceptance into adult society, giving up a licence can be traumatic for the similar losses it potentially represents.

Whether the licence revocation was voluntary due to a self-perceived loss of functional ability or was mandated by the licensing agency, the ongoing provision of mobility is necessary for the preservation of social, mental, and physical health and well-being.

The Rehabilitation Research Centre in the University of Alberta's Faculty of Rehabilitation Medicine has developed a video and other educational materials to help doctors communicate with their patients about driving cessation. The Driving Decline and Dignity-Maintaining Responses Project is part of a program for supporting patients, physicians and caregivers who have to deal with the loss of driving privileges because of medical impairment. (See <http://www.expressnews.ualberta.ca/article.cfm?id=6583>)

### **Health and Well-being**

By adopting an aging-driver strategy that addresses health and well-being, two questions come to the fore:

- ▶ What are the consequences to individuals' health (physical, mental and emotional) from mobility changes and what are the economic costs and societal impacts of these consequences?
- ▶ How can alternative transportation be planned and delivered so that mobility is not compromised?

The most immediate impact of losing or giving up a drivers licence is the loss of mobility. Research indicates that seniors who maintain their licence and ability to drive make several more trips per week outside the home than do those who no longer drive. This has a number of effects from a health and well-being perspective, but also socially and economically as opportunities such as volunteering and shopping are limited.

Just as individuals become less similar as they age, so too does the impact on an individual's health vary when he or she is no longer licensed. This heterogeneity is due to the interaction of a number of factors.

### ***Family and Friends***

Immediate family members, friends, and/or caregivers are often the first option in providing transportation due to their familiarity and the previously established comfort level. In rural areas, family and friends are frequently the only option due to the lack of public and alternative transportation.

### ***Access to Support Services***

Even with transportation options from friends and family, the transition to life without a licence is often difficult for all those involved. Insofar as a licence is indicative of membership in adult society, cessation can be traumatic and fraught with feelings of isolation, fears of abandonment, and all of the mental and emotional health issues that go with them.

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Access to counselling or support services can be a valuable remediation tool, helping ease the adjustment into a new phase in life. Currently, there is a dearth of formal services to help individuals in this regard. One potential option would be a specialist associated with medical centres, in the event a medical examination leads to a recommendation to stop driving. Most doctors are not trained and/or do not have the time to provide the type of information and support necessary once they break the news to the senior. Someone with access to referral services, information on mobility options, or even just having the time to listen to concerns would be a valuable resource.

Alternatively, some form of group counselling or a support network where former drivers could share concerns and opportunities would provide mobility information as well as serve a valuable networking and social role.

### *Self-awareness*

One common source of tension between aging drivers and those who are concerned about their ability to drive is the driver's level of self-awareness. Medical issues such as dementia affect one's ability to make an accurate self-assessment. Even in the absence of a medical condition, aging drivers may be reluctant to voluntarily give up their licence if they feel they are still safe, competent drivers and are making sufficient adjustments to their driving habits. At the extreme, individuals may continue to drive without a licence if they feel they are still able to and there is a lack of acceptable alternatives.

A major challenge for licensing authorities is to identify the driver who has a lack of self-awareness and refuses to cease driving regardless of the results of their evaluation.

At the other end of the spectrum, there are real costs to the health and well-being of drivers if they cease driving before they are functionally unable to do so. The development of self-assessment techniques, which is one aspect of any education component of an aging-driver strategy, should be refined as much as possible to ensure that individuals neither give up driving before they have to nor keep driving after it is safe to do so.

### **Education**

One of the most well-established facts in the aging driver literature is that people do a very poor job of planning for the day when they are no longer able to drive. This means the loss of a licence generally comes suddenly and can be disruptive in terms of making lifestyle adjustments.

However, planning for the day when driving is no longer an option is also the responsibility of public transit and community authorities. Individuals should be encouraged to consider their options ahead of time, familiarize themselves with public transit, and learn of the other transportation options available in their area.

Because most people can expect to outlive their driving life (men by 6 years, women by

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10), plans for driver cessation could become an integral part of retirement planning. An opportunity exists to incorporate mobility planning into retirement planning courses.

Licensing authorities may want to take on the responsibility of ensuring useful resources reach the correct audiences through the appropriate channels. This includes information for aging drivers (before cessation) and also their families and caregivers and medical practitioners, each of whom is best reached through different means. Physicians, for example, are less likely to attend community or stakeholder meetings but may take note of issues raised through their professional associations or journals. Likewise, groups such as city planners and traffic engineers need to be aware of the issues as demographic trends will make them all the more pressing in the future.

Social marketing campaigns are another tool to highlight the aging driver message. As an added benefit, besides reaching the primary stakeholders, the public at large can be informed of some key messages.

### **Alternative Transportation**

“Alternative” refers to modes of mobility other than the personally-operated motor vehicle. Any form of alternative transportation must pass the “5-A” test – be available, accessible, affordable, acceptable, and adaptable – in order for it to be used.

The various modes of alternative transportation can be grouped into broader categories:

The highest degree of personal autonomy is retained through walking or using a bicycle, electric bicycle, electric scooter or motorized wheelchair. This may be an option in urban areas where the distance between locations is not great, although it requires a certain level of physical and cognitive ability. In fact, some individuals may become unable to remain mobile as pedestrians before they lose the capacity to physically operate a motor vehicle. An anticipated increase in the use of power-assisted non-licensed vehicles may become a concern for transportation and licensing authorities.

Being a passenger in a private motor vehicle driven by family, friends, or caregivers also offers a measure of autonomy and flexibility. Trust and comfort are already established and this option is more amenable to the practice of aging in place, should amenities not be within walking distance. However, riders are dependent on others’ schedules. Some seniors are uncomfortable feeling as if they are a burden to others, who in turn may have to alter their own lifestyles or accept additional responsibilities.

Standard public transportation has the advantage of being relatively common and inexpensive in metropolitan and urban locations. However, usage by seniors is generally very low, owing to several factors. Many seniors have never used public transportation, which leads to increase anxiety and resistance to its use. Some municipalities, such as Victoria, BC, have transit familiarization programs for older users. Other barriers are lack of convenience, lack of awareness, perceived social acceptability, and concerns about safety, and accessibility. In addition, rural areas are notoriously ill-served by public transit due to the low population densities.

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Lastly, specialized transportation options target specific populations and can be offered either privately or through the public sector. Paratransit, dial-a-ride, independent or volunteer transportation networks, private chauffeurs, and shuttles operated by seniors' centres all offer unique services tailored to meet the requirements of their users. Many of these options are flexible enough to develop in ways that respond to changing client needs. While they generally receive positive assessments from those able to access them, many are unable to keep up with the ever-growing demand or face uncertainty around sustainable funding. Paradoxically, there is a disincentive to promote these services.

These alternative forms of transportation offer a continuum of assistance and accommodation. Location-to-location service (i.e., a bus) picks up and drops off at predetermined stops, neither of which is generally the home or final destination. Curb-to-curb service (a taxi) operates between two locations chosen by the client, though no further assistance is available beyond transportation. Door-to-door service provides an individual with full assistance between destinations, but not before or after arrival. Arm-to-arm service entails ensuring that the client is continuously assisted at all stages of the journey. Not all forms of alternative transportation are capable of offering each type, requiring clients to match available services to their individual needs.

### **3. INFRASTRUCTURE**

#### **3.1 VEHICLE**

##### **Design**

Vehicle design may help to compensate for impaired movement, loss of upper-body strength and loss of visual acuity.

A research project of the Canadian-government sponsored AUTO21 Network of Centres of Excellence, *Safe Transportation for Seniors* ([http://www.auto21.ca/health1\\_e.html](http://www.auto21.ca/health1_e.html)), investigates how well vehicle design meets the needs of seniors. Previous work suggests that seniors have difficulty getting in and out of vehicles, using seatbelts, and dealing with some of the visual aspects of instrument panels.

Techniques for modifying vehicles to maximize older adults' ability to drive safely include adjustment of seats, steering wheels, safety belts and mirrors, as described in *Roadmap to Driving Wellness* published by the American Society on Aging. [www.asaging.org](http://www.asaging.org)

The Canadian Association of Occupational Therapists publishes guidelines for choosing a senior-friendly car: [http://www.otworks.ca/otworks\\_print\\_page.asp?pageid=782](http://www.otworks.ca/otworks_print_page.asp?pageid=782). It provides a list of features from window size to easy-to-read instrument panel.

A “marketplace of disruptive demographics”, described by MIT AgeLab's founder

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Joseph Coughlin, is expected to see market pressures from baby boomers increasingly impact vehicle design to help aging drivers stay safely mobile.

### **Adaptive Equipment**

Adaptive equipment can take the form of:

- ▶ components that “bolt on” to an OEM vehicle (a vehicle from the original manufacturer); or
- ▶ structural and mechanical alterations to the vehicle, such as raising the roof and door, or lowering the vehicle floor.

Dealers specializing in adaptive equipment sell either components or modified vehicles designed to meet the individual needs of the customer, with guidance from professionals such as occupational therapist specializing in driver rehabilitation.

### **Information sources include:**

- ▶ Canadian Automobile Association  
<http://www.caa.ca/>
- ▶ Canadian Association of Occupational Therapists  
<http://www.otworks.ca/>
- ▶ Automotive Industries Association of Canada  
<http://www.aiacanada.com/document.cfm?itemid=153366&smocid=1487>
- ▶ National Mobility Equipment Dealers Association (US non-profit)  
[http://www.nmeda.org/consumers/consumer\\_guide.html](http://www.nmeda.org/consumers/consumer_guide.html)

## **3.2 ROAD DESIGN**

Road design is increasingly recognized as an area where targeted enhancements can help accommodate age-related changes related to vision, mobility (e.g., turning head, muscle strength) and cognition (e.g., reaction time). Such enhancements also improve safety for all road users.

Road design includes features such as:

- ▶ road markings, signs and signals that are easily visible,
- ▶ clearly marked turn lanes, bike lanes and pedestrian crossings,
- ▶ intersections that are well lit and free of visual obstructions,
- ▶ more left-turn lanes,
- ▶ traffic signals with more functionality to show who goes first,
- ▶ better lane markings,
- ▶ traffic calming to reduce the speed of traffic through neighbourhoods.

A July 2006 *Traffic Safety Guide for Aging Drivers* by the Alberta Motor Association Foundation for Traffic Safety presents a comprehensive list of best practices.

[http://www.ama.ab.ca/images/images\\_pdf/TrafficSafetyGuideforAgingDrivers.pdf](http://www.ama.ab.ca/images/images_pdf/TrafficSafetyGuideforAgingDrivers.pdf)

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## Safety Audits

A road safety audit (RSA) is a formal and independent safety performance examination of an existing or future road or intersection by an experienced team of road safety engineers, addressing the safety for all road users, including vulnerable road users. See *The Canadian Road Safety Audit Guide*, Transportation Association of Canada, 2001.

### 3.3 LAND-USE AND COMMUNITY PLANNING

A growing trend for seniors to “age in place” within their own homes, or at least in their own communities, is considered essential for governments to contain the costs of an aging population. However, North America’s traditional auto-dependent approach to development can present barriers to aging in place.

Land-use policies can influence behaviour and limit car use through strategies such as integration of residential and commercial facilities, discouraging the proliferation of big box stores and providing public transportation. Patterns of land-use development that are suitable for an aging population are similar to those needed for environmental sustainability.

**Canada:** To address the needs of non-urban Canadians, nine provinces in Canada are participating in the *Canadian Age-Friendly Rural and Remote Communities* project. [http://www.hrsdc.gc.ca/en/publications\\_resources/research/categories/population\\_aging\\_e/madrid/page06.shtml](http://www.hrsdc.gc.ca/en/publications_resources/research/categories/population_aging_e/madrid/page06.shtml)

**US:** Smart Growth America is a coalition of national, state and local organizations working to improve the planning and building of the towns, cities and metropolitan areas. See:

- ▶ Aging In Place
- ▶ Aging Society Alters Transportation Landscape

<http://www.smartgrowthamerica.org/health.html>

**International:** The World Health Organization *Age-Friendly Cities Project* is an international initiative to develop age friendly city indicators and guidelines. Several Canadian jurisdictions are participating in this project, which is expected to release its guidelines in October 2007.

[http://www.phac-aspc.gc.ca/seniors-aines/pubs/age\\_friendly/index.htm](http://www.phac-aspc.gc.ca/seniors-aines/pubs/age_friendly/index.htm)

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## **APPENDIX A: AGING DRIVER TASK FORCE TERMS OF REFERENCE**

### **MEMBERSHIP:**

BC - J. Kroeker-Hall (Co-Chair)  
ON - S. Lo (Co-Chair)  
AB - M. Kirchner  
BC - L. Howie  
MB - V. MacDonald  
NB - S. McCracken  
NL - C. Burggraaf  
ON - M. Henderson/L. Tasca  
QC - J. Dow/D. Lacroix  
SK - S. Crighton  
YT - C. Gray/G. Owen  
TC - P. Boase  
AAMVA - L. Cohen  
CAA - E. Lamoureux  
CanDRIVE - C. Crowder  
CSC - R. Marchand  
FSNA - D. Brown  
War Amps - K. Valley  
CCMTA - V. Todd/I. Tomlinson

### **RECORD OF DECISIONS REFERENCE:**

Standing Committee on Drivers and Vehicles, June/00  
Standing Committee on Road Safety Research and Policies, June/00  
Board of Directors, June/00, Dec/04, May/05, June/06, May/06, May/07

### **REPORTING TO:**

Standing Committee on Drivers and Vehicles  
Standing Committee on Road Safety Research and Policies

### **MANDATE:**

1. To monitor jurisdictional activities in the area of the aging drivers, and to develop an inventory of activities in each jurisdiction; and
2. To revise the content of the strategy as progress is made.

### **DEADLINES:**

December 2007

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## APPENDIX B: RESEARCH & REPORTS

### CANADA

**Canadian Research Centres on Aging**

<http://www.cihr-irsc.gc.ca/e/30794.html>

### AUTO21

<http://www.auto21.ca/>

A national research initiative supported by the Government of Canada through the Networks of Centres of Excellence Directorate and more than 110 industry, government and institutional partners.

- ▶ See: Safe Transportation for Seniors:

[http://www.auto21.ca/health1\\_e.html](http://www.auto21.ca/health1_e.html)

### CanDRIVE Canadian Driving Research Initiative for Vehicular Safety in the Elderly

<http://www.candrive.ca/>

A national multi-disciplinary research program, CanDRIVE is aimed at improving the health, safety and quality-of-life of Canada's older drivers.

### Interdisciplinary Research Program on Safe Driving (IRPSD)

[http://research.lakeheadu.ca/researchcentres\\_and\\_facilities.html](http://research.lakeheadu.ca/researchcentres_and_facilities.html)

Established in April 2007 to contribute to the reduction of traffic-related crashes through the understanding of the fundamental processes that support safe driving and through the development of interventions to optimize safe driving.

### Statistics Canada

<http://dsp-psd.pwgsc.gc.ca/Collection/Statcan/index-e.html#trans>

- ▶ Driving Characteristics of the Young and Aging Population 2000-2004
- ▶ A Portrait of Seniors in Canada 2006, Statistics Canada
- ▶ Seniors' Access to Transportation, Martin Turcotte, Dec. 2006 (based on data from 2005 General Social Survey)

### TIRF Traffic Injury Research Foundation

<http://www.trafficinjuryresearch.com/about/about.htm>

Seeks to reduce traffic related deaths and injuries by designing, promoting and implementing effective programs and policies, based on sound research.

- ▶ See: Form and Function conference proceedings (June 2006):

[http://www.trafficinjuryresearch.com/driving\\_and\\_function/forum\\_overview.htm](http://www.trafficinjuryresearch.com/driving_and_function/forum_overview.htm)

### US

#### AgeLab at MIT: Massachusetts Institute of Technology

<http://web.mit.edu/agelab/>

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Draws from centers of excellence throughout MIT as well as from universities, businesses and governments around the world. It also partners with corporate researchers who participate both as research sponsors and often as Research Fellows. AgeLab's work is financed by businesses worldwide, ranging from automobiles to foods to pharmaceuticals. In particular see:

- ▶ Publications
- ▶ Resources

**NHTSA** US National Highway Traffic Safety Administration

<http://www.nhtsa.gov/>

Various: in particular see:

- ▶ Medical Conditions and Driving: A Review of the Literature (Bonnie Dobbs, Sept. 2005):

**Senior Drivers.org** American Automobile Foundation for Traffic Safety

<http://www.seniordrivers.org>

See Research Links for links related to seniors and driving.

**TRB** Transportation Research Board

<http://www.trb.org/>

A division of the National Research Council, which serves as an independent advisor to the US federal government and others on scientific and technical questions of national importance. The Board facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation. See:

- ▶ Safe Mobility for Older Americans (2005)
- ▶ Transportation in an Aging Society: A Decade of Experience (2004)

## **INTERNATIONAL**

**Ageing Research Online** (Australia)

<http://www.aro.gov.au/>

Various: in particular see:

- ▶ Safety of older drivers: Strategy for future research and action initiatives

**Monash University Accident Research Centre** (Australia)

<http://www.monash.edu.au/muarc/>

- ▶ Various reports on aspects of older drivers

**Organization for Economic Co-operation and Development (OECD)**

<http://www.oecd.org/dataoecd/40/63/2675189.pdf>

- ▶ Aging and Transport: Mobility Needs and Safety Issues (2001)

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## APPENDIX C: RESOURCES

**Alberta Motor Association Foundation for Traffic Safety**, July 2006 *Traffic Safety Guide for Aging Drivers* presents a comprehensive list of best practices.

[http://www.ama.ab.ca/images/images\\_pdf/TrafficSafetyGuideforAgingDrivers.pdf](http://www.ama.ab.ca/images/images_pdf/TrafficSafetyGuideforAgingDrivers.pdf)

**AAMVA** American Association of Motor Vehicles Administrators

<http://aamva.org/>

A nonprofit organization that develops model programs in motor vehicle administration, law enforcement and highway safety. The association represents state and provincial motor vehicle officials in the US and Canada and provides liaison with other levels of government and the private sector.

**AIA** Automotive Industries Association of Canada

<http://www.aiacanada.com/>

A national trade association representing the automotive aftermarket industry in Canada.

**American Society on Aging**

[www.asaging.org](http://www.asaging.org)

See Road Map to Driving Wellness, an online module of the Society's Live Well, Live Long: Steps to Better Health compiled by the American Society on Aging, a non-profit organization funded through a grant from the Centers for Disease Control and Prevention.

**CAA** Canadian Automobile Association

<http://www.caa.ca/>

CAA supports a wide variety of traffic safety initiatives and helps to guide relevant traffic safety laws and public policy in Canada.

**Canada Safety Council (CSC)**

<http://www.safety-council.org/index.html>

A national, non-government, charitable organization dedicated to safety. Mission is to lead in the national effort to reduce preventable deaths, injuries and economic loss in public and private places throughout Canada. Serves as a resource for safety information, education and awareness in all aspects of Canadian life. See their popular 55 Alive Driver Refresher Course: <http://www.safety-council.org/training/55alive/55alive.htm>

**CanDRIVE** Canadian Driving Research Initiative for Vehicular Safety in the Elderly

<http://www.candrive.ca/>

A national multi-disciplinary research program, CanDRIVE is aimed at improving the health, safety and quality-of-life of Canada's older drivers, recognizing the importance of independent living for seniors.

**CAOT** Canadian Association of Occupational Therapists

<http://www.otworks.ca/>

Occupational therapists trained in driver assessment and rehabilitation contribute to

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keeping senior drivers safely mobile. For provincial/territorial professional occupational therapy organizations, see:

[http://www.otworks.ca/otworks\\_page.asp?pageID=738](http://www.otworks.ca/otworks_page.asp?pageID=738)

**CARP** Canada's Association for the Fifty-Plus

<http://www.carp.ca/index.cfm>

CARP aims to promote and protect the rights and quality of life for older Canadians by:

- 1) developing practical recommendations to enhance health care, human rights and income;
- 2) working with government on policy initiatives;
- 3) providing information on key political and economic issues as well as lifestyle choices;
- 4) negotiating group benefits and savings on services and products

**CCMTA** Canadian Council of Motor Transport Administrators

<http://ccmta.ca/>

This association represents the federal, provincial and territorial governments of Canada and provides a national forum and research base for development of public policy and programs for road safety and driver and vehicle licensing.

**CED** Community Economic Development

<http://www.ccednet-rcdec.ca/en/pages/about.asp>

An association of community-based organizations and practitioners from every region of Canada. CED aims to promote and support community economic development for the social, economic and environmental betterment of communities within Canada.

**DOT** US Department of Transportation

<http://www.dot.gov/>

US federal government department whose mission is: "ensuring a fast, safe, efficient, accessible and convenient transportation system that meets vital national interests and enhances the quality of life of the American people, today and into the future."

**DVA:** See VAC

**FCM** Federation of Canadian Municipalities

<http://www.fcm.ca/>

Represents the interests of municipalities on policy and program matters that fall within federal jurisdiction. FCM is dedicated to improving the quality of life in all communities by promoting strong, effective and accountable municipal government.

**FSNA** Federal Superannuates National Association

<http://www.fsna.com/>

A Canadian national non-profit organization, FSNA is recognized by the Government of Canada as the major representative of pensioners from the Canadian Forces, the Public Service of Canada, the RCMP, and of federally appointed judges.

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**Division of Aging and Seniors Health Canada**

<http://www.hc-sc.gc.ca/seniors-aines/>

Provides federal leadership on health issues related to aging and seniors. The Division serves as a focal point for information and centre of expertise in this area.

**National Seniors' Council**

<http://www.seniorscouncil.gc.ca/en/home.shtml>

Established in May 2007 to advise government on all matters related to the health, well-being and quality of life of Canadian seniors.

**NHTSA US National Highway Traffic Safety Administration**

<http://www.nhtsa.gov/>

As an agency of the US Government's Department of Transportation, NHTSA aims to save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity.

See: Screening & Assessment Practices:

[www.nhtsa.dot.gov/people/injury/olddrive/CommMobilityDementia/pages/CurrentScreening.htm](http://www.nhtsa.dot.gov/people/injury/olddrive/CommMobilityDementia/pages/CurrentScreening.htm)

**PHAC Public Health Agency of Canada**

<http://www.phac-aspc.gc.ca/>

Mission: to promote and protect the health of Canadians through leadership, partnership, innovation and action in public health.

**Senior Drivers.org American Automobile Association Foundation for Traffic Safety**

<http://www.seniordrivers.org/home/index.cfm>

Provides information for drivers, care providers and researchers.

**TAC Transportation Association of Canada**

<http://www.tac-atc.ca/>

A national association that promotes safe, secure, efficient, effective and environmentally and financially sustainable transportation services to support Canada's social and economic goals. Provides a forum for gathering or exchanging ideas, information and knowledge on technical guidelines and best practices.

**TC Transport Canada**

<http://www.tc.gc.ca/>

Develops and administers policies, regulations and services for Canada's transportation system.

**VAC Department of Veterans Affairs**

<http://www.vac-acc.gc.ca/general/>

Provides services and benefits that respond to the needs of veterans, other clients and their families, in recognition of their services to Canada.