

**Title: Transportation alternatives for rural seniors in New Brunswick, Canada:
Issues, policy implications and research needs**

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ABSTRACT

A review of the literature relating to rural older people and transportation suggests there is a disconnect between the transportation needs of rural older people and the transportation available or provided to them, especially in the context of those who have curtailed driving or are no longer licensed. While numerous services claim to serve rural transportation interests, little research has closely examined the availability and type of the services relative to the transportation needs of rural seniors. Selected local and intercity transportation operators in New Brunswick, Canada (population 730,000) were identified, profiled and interviewed to explore issues relating to service uptake by rural seniors, including policy implications and research needs. New Brunswick was used as a case study given its substantial rural population (50% of the population), when compared to Canada as a whole (20% of the population is rural) (*1*).

The study found many rural areas in New Brunswick have no local transportation alternatives available, and of those that do, most struggle for ridership and all have funding issues. Available transportation at the local level is a mix of non-profit associations, nursing homes, private companies and municipally-sponsored systems. Some taxi services are willing to serve rural areas, but at substantial cost. Intercity transportation consists of scheduled bus service between terminals in municipalities by one main carrier along major routes and by passenger rail along one corridor only. The most successful rural system appears to be a member-based service using passenger vehicles but provincial government funding cuts jeopardizes the future of the service.

INTRODUCTION

A review of the literature relating to rural older people and transportation suggests there is a disconnect between the transportation needs of rural older people and the transportation available or provided to them, especially in the context of those who have curtailed driving or are no longer licensed. There are numerous services that claim to serve rural transportation interests, yet little research has closely examined the availability and type of the services relative to the transportation needs of older rural people.

Selected local and intercity transportation operators in New Brunswick, Canada (population 730,000) were identified, profiled and interviewed to explore issues relating to service uptake by rural seniors, including policy implications and research needs. New Brunswick shares its western border with the state of Maine and is used as a case study given its substantial rural population (50% of the population), when compared to Canada as a whole (20% of the population is rural) (1). Four main data sources were used:

1. The Government of Canada's "Access to Travel" website to identify services
2. A listing of licensed passenger motor carriers and terms of their 2008 licenses as provided by New Brunswick's Energy and Utilities Board (EUB)
3. Personal interviews and surveys of relevant motor carriers profiled in the two previous sources
4. Statistics Canada census data

The results of these interviews and surveys represents a solid first step in qualifying the disconnect between service provision and uptake and lays the groundwork for more in-depth and comprehensive research in this area.

Background

In the past 50 years, there have been ambitious highway development policies for transportation in North America, such as the Trans Canada highway and the U.S. Interstate and Defence highways. However, it is unlikely that the architects of these systems considered that the very systems they designed for mobility in the past would in fact be the cause of transportation immobility for many today and in the future. Wachs and Blanchard (2) cite Gelwicks (3) in that "tomorrow's elderly will be left in declining suburbs; will suffer from too low a density to maintain social interaction and widely dispersed vital services without public transportation". Some would assert this prediction is proving correct.

Population projection estimates indicate that by 2031, the number of Canadians aged 65 years and older will double to over 9 million and represent 23% of the total population (4). In addition, the majority of seniors will be women. People who have built their life around the automobile who now are experiencing declines in their financial or physical health that compromise automobile operation are at risk of becoming Gelwicks' "Tomorrow's elderly". Often overlooked in the debate on aging and transportation is the plight of older people in rural areas where the only available transportation mode is the

automobile. In some provinces in Canada, including New Brunswick, over 40% of older people live in rural areas.

New Brunswick is located on the east coast of Canada between Quebec and Nova Scotia. It is similar in size and geography to the state of Maine, with which it shares its western border. It offers a good case study for rural transportation needs given its substantial rural population (50% of the population), when compared to Canada as a whole (20% of the population is rural) (1) and growing population of senior citizens. Over the past 10 years, the total provincial population has declined slightly. Table 1 shows the significant demographic changes in New Brunswick during this time with double-digit decreases in the population aged 44 years and younger and double-digit increases in the population aged 45 years and older.

TABLE 1 New Brunswick Population Data by Age for Census Years 1996-2006 (5)

Ages (yrs)	Census year population			96-06 change
	1996	2001	2006	
under 15	144605	130100	118250	-18.2%
15-24	105970	97430	92325	-12.9%
25-44	235295	216970	196950	-16.3%
45-64	159075	186070	214840	35.1%
65-74	51675	52025	56850	10.0%
75+	41505	46915	50790	22.4%
Total	738125	729510	730005	-1.1%

The current and anticipated growth in the rural older population suggests there will be substantial impacts on transportation systems in terms of service need and potential safety considerations, but little has been done to understand and quantify this. It is this issue that is likely to become more prevalent as those who grew up during the heyday of automobile growth are now becoming senior citizens and starting to suffer from the effects of aging that can making driving difficult or impossible over time.

Literature Review

Transit and paratransit have historically been viewed as the default solution to the elderly transportation problem. While Wachs and Blanchard (2) challenged this view "...the elderly [of 1976] did not become transit-dependent as they aged; it would be more correct to say that they never became automobile dependent when they were younger", others supported the traditional view. Laomarsino and Matthais (6) in their review of the need for updating transportation studies in smaller urban areas commented that for transportation planning purposes "an increase in older citizens could indicate the needs for improved transit facilities..."

Decades later, the default solution of transit for the elderly appears widely held, even though data show that older people are not patronizing transit in any meaningful numbers, when compared to the automobile. While the American Public Transportation Association (APTA) has made calls for more mass transportation to address the growing

over-65 demographic (7), data from the 1995 National Passenger Transportation Survey (NPTS) show that public transit is the mode choice for only 0.3% of rural Americans over the age of 65 years (8). The private automobile still accounts for 81%-90% of trips for all elderly cohorts, with nearly a third of drivers over 85 taking automobile trips as passengers.

A 1998 study of a publicly funded rural transportation system in Kansas reported that only 2% of rural Kansas residents regularly used rural transit, while nearly 18% of the population were over 65 years of age (9). In addition, the author estimated the provided services were only meeting 40%-60% of demand. Actual trip needs were double or triple the current ridership, which averaged one person-trip per year. The author concludes that “improved transportation and allocation of transit resources will further develop mobility for the general population, particularly for the elderly, disabled, and other transportation disadvantaged citizens of Kansas”.

Mielke, *et al.*(10) reviewed a study on transportation systems in Montana as part of their background work on a North Dakota transportation needs assessment. This Montana rural-passenger needs study was completed by LSC Transportation Consultants and was based on returned questionnaires from 130 social service agencies on the transportation needs of the low income, elderly, and disabled. The results of the Montana study provide interesting insight: 71% of agencies limit transportation provision to certain user groups, and 68% of restrictions are limits placed by the funding source.

This practice of limiting ridership to a specific user group appears to be common practice in the U.S. Mielke, *et al.*'s profile of the various sponsoring authorities include the federal Older Americans Act, which includes transportation funding for dial-a-ride and paratransit for people 60 years and older only. Given the funding agencies and various restrictions, this explains why the need for agency coordination appears so often as a priority when discussing transit in the U.S.

Even with public funds available for transit, the dependence on the automobile in rural areas appears universal throughout North America. Reviewing 2001 National Household Travel Survey data from the U.S., Pucher and Renne (11) state that “the flexible, convenient transportation provided by the private car is virtually indispensable for virtually every rural household, regardless of income”. They also calculate that in rural areas, only 1% of households without cars use public transit, making public transit “virtually irrelevant for anyone in rural areas trying to reach anything”.

One obvious omission from Pucher and Renne is the lack of analysis of the transportation differences between men and women. Siren (12) suggests that the differences between men and women are more distinct in rural areas when it comes to women selecting transportation alternatives to the automobile. She also argues that what is missing from research literature is a “deeper more qualitative analysis of the reasons why women choose their modes differently from men”, and concludes that without this understanding, it is impossible to know if their modal choice reflects personal preferences. Mollenkopf *et al.* (13) found that “older persons living singly, women, persons with impaired health

and low economic resources, and the rural elderly tend to be particularly at risk of losing their abilities to move about.” They also indicate older elderly people were less satisfied than the younger cohort, and rural elderly women were the least satisfied.

Foley *et al.* (14) analysis proposed that based on life expectancy, and other factors, that “subject to driving cessation, men will have about 6 years of dependency on alternative sources of transportation, compared with about 10 years of dependency for women”. Driving cessation patterns appear to be skewed with women relinquishing their licenses earlier than men, with only 29% of women over 85 years of age retaining a license, compared to 72% of men (15). Jett *et al.* (16) suggest that driving cessation strategies are more successful for women than men. Burkhardt and McGavock (15) point out that this may be due to cohort effects (as licensing is generally universal for younger women) and may change for the newest senior cohorts.

Herold *et al.* (17) identify duplication and gaps in transportation service and the need to focus transportation policy to eliminate silos. They argue that many government planning decisions are being made solely based “on fiscal determinants”, and that the private sector “has also been reluctant to remain in rural locales due to the disadvantages of low population thresholds.” They argue that the cost of providing accessible transportation services for the rural elderly may be offset by lower health care costs, but quantifying the link between transportation and healthcare may be difficult.

It is not clear how the provision of more mass transit in rural areas solves the fundamental problem of mobility for seniors if they are not using the existing systems. Suen and Sen (18) suggest some reasons for this lack of uptake: public transportation does not match their needs; public transportation is too difficult to use physically; or psychological factors predispose seniors against public transportation. A clearer understanding of travel habits of seniors using the automobile is needed to better understand the lack of transit uptake.

Formative accessible transportation policy

The Canada Transportation Act (CTA) of 1996 outlines Canada’s national transportation policy. This policy consists of objectives which can be achieved when certain conditions are met. The CTA is administered through the Canadian Transportation Agency, whose mandate relating to accessibility is to “[remove] undue obstacles to persons with disabilities who travel via the air, rail and marine networks” (19). The definitions of “obstacle” and “undue” are left to the discretion of the Canadian Transportation Agency. This means that there is no federal transportation policy on the accessibility of the most utilized mode, automobile transport, which falls under provincial jurisdiction.

There are selected instances of federal involvement in involving accessible transportation in provincial jurisdiction. The “Accessible Vehicle Acquisition Program” (or AVAP) was a federally funded program that many organizations used to purchase accessible vans/busses for rural services or nursing homes in the 1990s (Hanson, “unpublished work”). It should be noted that many of the services profiled later on in this paper are still operating vehicles purchased through that program. Transport Canada (analogous to

the U.S. Department of Transportation) developed a website called “Access to Travel” which maintains a database of local accessible services throughout Canada.

METHODOLOGY AND DATA SOURCES

Four main data sources were used to determine the availability of rural transportation services in New Brunswick:

1. Transport Canada’s “Access to Travel” website to identify services
2. A listing of licensed passenger motor carriers and terms of their 2008 licenses as provided by New Brunswick’s Energy and Utilities Board (EUB)
3. Personal interviews of relevant motor carriers profiled in the two previous sources
4. Statistics Canada census data

Transport Canada’s “Access to Travel” website

The “Access to Travel” website provides “information on accessible transportation and travel across Canada with the aim of making accessible travel easy and enjoyable” (20). It aims to be a resource to seniors and those with disabilities for local and national travel on the four main transportation modes (road, rail, air, ferry). The website continues:

“The differences in accessible transportation services between communities and the lack of available and accessible information on these services create a huge barrier to transportation for persons with disabilities. It also makes trip planning an onerous, time consuming and difficult task”.

The website indicates that it was “built on the principles of simplicity, relevancy, currency and comprehensiveness”. Its commitment to currency and comprehensiveness makes it a valuable starting point for evaluating service availability across Canada, but in this case will focus on New Brunswick. It is the source used by both the New Brunswick Department of Transportation and the Premier’s Council on the Status of Disabled Persons to promote accessible transportation services in New Brunswick.

New Brunswick Energy and Utilities Board

Intercity bus services are economically regulated in New Brunswick by the Energy and Utilities Board (EUB), the body which approves rates, schedules and stops. The EUB was contacted to provide a list of licensed motor carriers in New Brunswick and their contact information. This list was coded into a spreadsheet and used to determine potential rural carriers, and to separate scheduled from charter services.

Personal operator interviews

Several of the organizations profiled in “Access to Travel” were interviewed for this research paper to determine the actual application and uptake of their transportation systems. Organizations were generally asked the following types of questions about their vehicles:

- What are they used for?
- When they are used?
- Who *can* use them, and who *does* use them?

- How are they funded?

The results of these interviews, while not statistically significant, represent a solid first step in qualifying the disconnect between service provision and uptake and lays the groundwork for more in-depth and comprehensive research in this area. A list of specific questions is available from the author.

PROFILE OF AUTOMOBILE ALTERNATIVES FOR LOCAL TRANSPORTATION IN RURAL NEW BRUNSWICK

The automobile alternatives available to New Brunswickers that do not or cannot drive include: walking, taxis, drives from family and friends, dial-a-bus/accessible transport, public transit, intercity bus, and limited VIA Rail passenger service. However, the availability and uptake of automobile alternatives in rural areas, including rural to urban transportation and rural to rural transportation, is unclear.

Taxi services

Taxi services offer an alternative for those who do not drive. Most, if not all, larger urban areas and smaller service areas have taxi service. Since taxis are fee for service, it is most likely that any rural resident could arrange transportation to any other rural or urban centre for the right price.

Calls were placed in April 2008 to five taxi firms in the Fredericton-Oromocto area to determine costs for a trip from the rural area of Geary to the regional hospital in Fredericton, a round trip of approximately 60 km. A round-trip visit to the hospital for an appointment would cost between \$70 and \$80. It is conceivable that someone may use this service on occasion, but unlikely for regular trip-making. This raises another issue: not only is transportation limited for rural to urban travellers, but how can rural non-drivers travel within rural areas? Nevertheless, taxis do represent an on-demand option.

Informal transportation networks

Informal transportation networks refer to a senior's social support network (friends and family) that provide transportation when needed. *Portrait of Seniors in Canada (21)* by Martin Turcotte and Grant Schellenberg at Statistics Canada found that when seniors have a long-term health condition and need help for shopping, transportation, and bill paying, the majority of help comes from their immediate family:

- 30% of seniors receiving help get it from their daughters;
- 25% from their sons;
- 22% from their spouses;
- Less than 5% comes from the government or NGO.

The report also found that 25% of women and 15% of men received informal help for transportation or running errands from those outside of their home (during the past month). These data indicate that, for most seniors, informal transportation networks are the most popular form of alternative transportation system.

Formalized accessible services for rural residents

Formalized accessible transportation services in New Brunswick are formal in the sense that they are operated as non-profit corporations, municipal transit services, private companies, or as an arm of a nursing home. This section reviews the “Access to Travel” website that profiles local accessible transportation services available to rural New Brunswick residents.

“Access to Travel” lists accessible transportation services for 23 municipalities/areas in New Brunswick. Of the 23 areas, seven are listed as only being served by Acadian Lines with “Accessobus”, an accessible version of its intercity bus. It is not appropriate to categorize this as “local” travel since there is no door-to-door service, rather intercity service with accessible busses from its existing terminals (Hanson, “unpublished work”).

The remaining 16 areas are served by 16 systems (Moncton and area are served by two agencies) in the following four categories:

- Nursing home transportation: 6
- Non-profit associations: 5
- Municipal-sponsored: 3
- Private company: 2

It should be noted that some retirement communities or condominiums own and operate a shuttle service for their residents, but are not in the practice of providing additional service for those outside of the community.

Geographic coverage of accessible services

The 16 service areas include 14 which appear to serve rural areas in New Brunswick. This includes:

TABLE 2 List of Transportation Services Theoretically Available to Rural Residents in New Brunswick

Area	Name of service provider	Type	Number of vehicles	Type of vehicles
Bathurst area	Bathurst Community Venture Van Inc.	NP	1	LEV
<i>Bouctouche (Kent)*</i>	<i>Manoir Saint-Jean-Baptiste</i>	<i>H</i>	1	<i>Minibus</i>
<i>Charlotte County</i>	<i>Charlotte County Dial-a-ride</i>	<i>NP</i>	21	<i>Car</i>
<i>Charlotte County</i>	<i>HMS Transportation</i>	<i>PC</i>	2	<i>BWL</i>
<i>Dalhousie area</i>	<i>Dalhousie Nursing Home</i>	<i>H</i>	1	<i>BWL</i>
<i>Fredericton Junction</i>	<i>White Rapids Manor</i>	<i>H</i>	1	<i>Minibus</i>
<i>Hampton and Kings Country</i>	<i>Dr. V. A. Snow Centre Inc.</i>	<i>H</i>	1	<i>BWL</i>
Inkerman	Les Résidences Inkerman Inc.	H	1	LEV
<i>Lamèque</i>	<i>Commission des Loisirs</i>	<i>M</i>	1	<i>LEV</i>
<i>Minto, Chipman</i>	<i>Grand Lake Accessible Transportation</i>	<i>NP</i>	1	<i>LEV</i>
<i>Miramichi and area</i>	<i>Miramichi Accessible Transit</i>	<i>NP</i>	2	<i>BWL</i>

Greater Moncton	Wheels on Wheels Inc	PC	5	LEV
Sussex and area	Kiwanis Nursing Home	H	1	LEV
Woodstock	Woodstock Community Transport Inc (Cdn Red Cross)	NP	1	LEV
NP: Non-profit, H: Nursing Home, PC: Private Company, M: Municipal-owned *Names in <i>italics</i> were contacted for this study LEV: Lift equipped van; BWL: Bus with lift				

There are eight additional counties in New Brunswick that do not have any local rural accessible services as determined from the “Access to Travel” website.

Actual community usage

Though marketed as “accessible” services available to the public, only the urban-based Miramichi Accessible Transit and the volunteer driver automobile-based Charlotte County Dial-a-Ride (CCDR) reported any significant usage in the community. In fact, CCDR has 94 individual and group members and provides over 300 trips per month. The nursing homes reported minimal usage by those outside of the residence. In fact, one residence has never had uptake from the community, while one other has had only one user. The third residence has shared its vehicle with other seniors’ homes, but no community uptake. A fourth residence had removed its vehicle from active community service and reserves it for the residence only.

One non-profit organization, stationed at a nursing home, had only two clients regularly use the service over the last two years, despite extensive efforts to market this service. They reported that most people and volunteer organizations thought the bus was for the nursing home only, therefore people did not see themselves as eligible. The accessible services offered by the private company HMS Transportation are actually used daily by the local school district to transport students with disabilities. Aside from the Charlotte County “Dial-a-ride” (CCDR), there does not appear to be any truly rural-based transportation system meeting any level of success in New Brunswick.

Organizations’ perspective on satisfying transportation needs

Five of the organizations offering accessible transportation services for the community based out of nursing homes were asked their opinions on the following three items:

- Does this service meet the transportation needs of your existing clients?
- Does this service meet the transportation needs of the local community?
- Are seniors in rural areas (who do not drive) meeting their transportation needs?

All five organizations believed they completely or mostly met the transportation needs of their clients. Three felt they completely or mostly met the transportation needs of the local community, while two felt they did not or only somewhat met the transportation needs of the community. Four out of five organizations did not believe seniors in rural areas who do not drive are meeting their transportation needs, with one neutral.

Common challenges

Funding for more and better service was a common issue for all, but for different reasons. Miramichi Accessible Transit (MAT) has such a high uptake of services and calls for a public transit system in Miramichi to deal with the demand. They receive funding through fundraising and some government contracts to transport certain individuals. CCDR had received some funding support from the provincial government, but the future of the service is in jeopardy since funding has yet to be renewed. The nursing homes generally support their busses through the operating funds of the residence, but additional community transportation requires volunteer drivers and a funding source. There is also the perception in the community that these services are for the nursing homes only. White Rapids Manor is now offering honorariums to drivers to encourage more people to become involved. CCDR offers drivers paid mileage.

PROFILE OF AUTOMOBILE ALTERNATIVES FOR INTERCITY TRANSPORTATION IN RURAL NEW BRUNSWICK

There are two main automobile alternatives for intercity travel in New Brunswick: VIA Rail passenger service and intercity bus service.

Rail passenger service

VIA Rail is Canada's version of Amtrak. It is a Canadian Federal Crown Corporation operating a national passenger rail service (22). Its New Brunswick operations are limited to the province's eastern coast, one train per day eastbound and one westbound, six days per week. The capital city of Fredericton is not accessible by passenger rail, nor is the largest city (with the largest hospital) Saint John. VIA Rail's *Ocean* (the name for the eastern train) is marketed more as a tourist service than a realistic intercity transportation option in New Brunswick. Approximately 105,000 passengers (on and off) year used VIA Rail in New Brunswick in 2007 (23).

Intercity bus service

The vast majority of intercity bus licenses in New Brunswick are for charter operations, of which there are 47 listed in EUB's motor carrier directory (24). These would be primarily for tourism purposes. There are eight of the 47 listed as operating scheduled passenger service, two of which are municipal transit services. Of the remaining six, there is only one operator truly providing scheduled intercity service throughout New Brunswick: Acadian bus lines. Some of the charter operations have operated scheduled service on limited basis.

National policy issues surrounding passenger rail and intercity bus

In 2001, the Canada Transportation Act (CTA) Review Panel conducted an exhaustive review of the CTA, which included, among other things, a discussion on the future of intercity passenger rail. Stating that intercity passenger rail is in "long-term decline", the Panel also noted that VIA Rail "has great difficulty trying to match air fares on its moderate-distance service between central Canada and the Maritimes. This is a market that rail is bound to lose" (25). In addition, the Panel noted that 40% of the users are in the highest income quartile, with only 7% in the lowest quartile, questioning the rationale for highest income Canadians to be receiving subsidized service. This clearly puts the

future of intercity rail in New Brunswick in jeopardy, yet it is not clear that effort is being made to modify the existing system in New Brunswick to better serve rural residents along the one existing corridor. Modifications could include increased frequency, dayliner service within New Brunswick, or expansion to the two other rail corridors in New Brunswick (CN and NB Southern Railways). It is also not clear that performing these modifications offers any improvement over existing intercity bus service.

Intercity bus services received scrutiny by the Senate Standing Committee on Transport and Communications (SSCOTC) in 2002 (26). It studied various aspects of the bussing realm, including the provision of rural services. The Committee was not prepared to recommend economic deregulation at that time, but did recommend a “modest” subsidy of \$30 million per annum to offset the costs associated with elimination of cross-subsidization of routes in rural areas.

The SSCOTC noted that intercity bus use was in decline, which they indicated was linked to factors including “rising incomes and car ownership; urbanization; the expansion of urban transit systems to surrounding areas; and a system of government regulation dating from the 1930s”. The Committee appeared concerned that complete deregulation would leave many rural areas without service, yet challenged operators to employ different vehicles, such as vans to “show what they can do”. At the same time, the Committee highlighted a key problem: “the convenience, comfort, and privacy of cars make it very difficult to persuade users to leave their private vehicles at home”. The SSCOTC indicated that the intercity bus file would be reviewed in five years, which would be 2007; however no work has been started as of April 2008 (Hanson, “unpublished work”).

PROFILE OF SELECTED ALTERNATIVE SERVICES

The services that appear to be best patronized are those that require registration or membership (CCDR, MAT) and are not associated with a nursing home or perceived to be exclusively for seniors. Anecdotally, the CCDR reported an excellent volunteer network and valuable relationships developed between clients and drivers. This model is being investigated for adoption by other rural areas (Grand Lake, Sackville). Since it grew from grassroots community support, funded in the pilot stage by the New Brunswick provincial government, uses existing vehicles, and pays driver mileage, it can be assumed that this is a concept, if adopted on a broader basis, could significantly improve rural transportation for non-drivers.

CCDR represents a different approach to the conventional transit wisdom of providing a vehicle and service with hopes of ridership. In addition, it serves seniors, but does not limit ridership to seniors. CCDR is a semi-formal system. It is formal in the sense it is membership and volunteer-based (including drivers and vehicles), yet the informal social network contributes to ridership growth. Another example of a similar semi-formal system is ITNAmerica.

Semi-formal community transportation networks

ITNAmerica (Independent Transportation Network) is a non-profit organization devoted to enabling mobility for seniors and those with visual impairments. Founded in Portland,

Maine, it uses a system of volunteer and paid drivers to provide automobile transportation to over 1000 seniors within a 15-mile radius of Portland, 24/7 (27). Discussions concerning ITNAmerica in the literature have been very positive, and there are plans to expand the Network nationwide in the United States. The main difference between a concept like ITNAmerica and CCDR is that ITNAmerica does not focus exclusively on those with disabilities or financial difficulties. In addition, ITNAmerica is limited to people 65 years of age and older. Funding arrangements are also quite novel: seniors can trade in their cars for rides, similar to a reverse mortgage on a home (28). These vehicles are sold to support network expenses or introduced into the ITNAmerica “fleet”.

Closer inspection of the program suggests some limitations for ITNAmerica’s applicability in rural areas such. First, the age limit of 65 precludes the involvement of those who may be 55 and retired. Second, limiting to seniors-only may make it less viable in less densely populated rural areas. Third, it has not been proven in any jurisdiction smaller than Portland (230,000 in the greater Portland area, (29). There is also a substantial setup fee, similar to a franchise fee. There are positive aspects to the model, including it is self-supporting (no government funding needed), more personal than a transit bus, and appears to make use of and expand existing social networks.

Government funded rural transportation systems in Canada

Nova Scotia has a coordinated, provincially funded, dial-a-ride system operating in seven different regional areas (30). It is for seniors, those with disabilities, and those economically disadvantaged. The provincial subsidy was \$550,000 in 2003. Services are limited to those with a population density less than 0.15 persons per acre. The Kings County accessible system provided nearly 12,000 rides in 2002. However, there has been a new transit service offered in Hants County which has eroded some of the dial-a-ride’s customer base, creating funding challenges (31).

The Province of Saskatchewan owns and operates the Saskatchewan Transportation Company, a province-wide coach bus service (32). Busses range in size from 55 passenger coaches to 15 passenger vans. One innovative offering is a medical pass for \$53.95, allowing unlimited travel for 30 days to physician prescribed treatment.

Other innovative rural transportation schemes

In New Brunswick, like in many North American jurisdictions, there is a major publicly funded rural transportation system already in existence that provides door-to-door service in virtually every community, including transportation from rural areas to urban areas. This is the bus system for the public school system. The North Dakota study pointed out that given current usage by schoolchildren in that state, there is additional capacity available within existing school busses to transport passengers (10). In New Brunswick, there are nearly 1100 school busses (1300 including vans and other transport and transit busses) moving 95,000 students daily, with an annual budget of \$47 million, plus \$6 million for capital replacement (33).

The use of school busses for rural transit is not a new idea, as it would clearly make sense to increase the usage of an asset that is typically only used twice per day, 10 months per

year. However, one novel approach takes a look at the issue from the opposite perspective: using rural transit to provide transportation for school children, and making it attractive enough to encourage transit use by these children when they grow up. At an international conference TRANSED 2007 (Transportation for the Elderly and Disabled), a pilot project was presented that combined the transportation needs of school children, adolescents, commuters as well as older and disabled passengers in rural Sweden (34). This system is considered successful at integrating existing transportation systems, such as paratransit, school busses, and transit into a more efficient and effective unit.

Instead of using the typical North American yellow school bus, this system uses coach busses that run regularly and give school children priority. Significant effort went into community coordination, including changing school starting times to make it easier to provide transportation for commuters. This type of comprehensive, coordinated system does not appear to have been applied in North American jurisdictions, though some are exploring the concept. Both Iowa and North Dakota have explored further integrating student and commuter transport, with Iowa's focus on student transport with urban transit, and North Dakota's focus on rural transit with student transport (10).

Given the financial and organizational effort that goes into New Brunswick's pupil transportation system, modifying the existing system to provide transportation service to rural areas seems a viable possibility. It could bridge the gap between local service and intercity service. Again, more fundamental research is needed to determine whether modification of a system like this would actually meet the transportation needs of rural older people.

RESEARCH NEEDS

The semi-formal system appears to be a very promising approach to addressing the "rural older driver problem". In addition, the extensive school bus system in New Brunswick offers opportunities for coordination. Questions remain, however, on whether this approach can actually deal with the projected growth of older drivers who require alternatives. The need for a system may exceed the available supply of volunteers. It will be necessary for any transportation system to offer service equivalent or better than that currently being used by someone to ensure uptake. The financial challenges experienced by virtually all accessible transportation operations in New Brunswick suggest the status quo is not sustainable, and a longer-term, concrete, rural transportation policy is needed in New Brunswick.

There is the question of what to do with existing rural transportation "systems". What can be done to improve uptake of these systems and make it relevant to the needs of rural older people?

Addressing the transportation issues for seniors in rural areas cannot take place without comprehensive data to back up the system selection and it is this data that does not exist in a meaningful way. It is not known whether a rural public transportation system is even desired by older rural residents if they are currently meeting their transportation needs, either themselves or through an informal transportation network of family and friends.

Additionally, it is possible that the research focus on rural seniors and providing them transportation is actually indicative of a far greater problem of transportation mobility in rural areas. In that case, can a system be developed that is all things to all people?

Previous research has suggested that the reason that many seniors have not used so-called “senior” transit for the simple reason that they do not want to be called “old” (35). Kihl’s research review found that older people perceive themselves as younger than their chronological age, and react negatively to programs exclusively associated with the elderly. In that case, can the branding of a service for “seniors” or “the elderly” actually discourage the use of this service by the group for which it was intended? Is the provision of these branded services more to satisfy the need of the public to be perceived as doing “a good thing” for seniors rather to address actual mobility needs? These questions are not easily answered and require further understanding of transportation needs and choices.

Major provincial and national issues and policy implications

There are two major national issue looming that will be manifesting itself at the local and regional level: access to medical facilities from rural areas; driving cessation and gender differences.

Access to medical facilities

Setting aside the obvious administrative differences between the public Canadian healthcare system and the private U.S. system, transportation access to health facilities is a common policy implication for older drivers when such access is dependent on automobile transportation. In Canada, rising health care costs are resulting in the development of centralized regional health services and the closure of smaller health facilities. While likely considered prudent from a hospital management perspective, there has been much less attention paid to ensuring citizens have adequate and safe transportation access to the facility.

Accessibility to urban regional health facilities for rural seniors remains a concern for safety reasons. Hildebrand and Myrick (36) report that the majority of accidents experienced by the rural elderly are in urban areas, even though they drive more kilometres in rural areas. This leads to important questions:

- Can driving to the hospital be as dangerous for the rural senior as the condition that requires the hospital visit?
- Does fear of urban driving impact hospital usage by rural seniors?
- Can transportation connections to health care facilities be designed and upgraded to better accommodate those with varying driving capacities?

Driving cessation and gender differences

Another major fundamental policy issue relates to driving alternatives for older people who can no longer drive. Driving cessation has emerged as a critical issue facing the elderly, their families, the health care profession, and transportation infrastructure and service providers, but the issue appears to affect men and women differently. The

literature suggests women appear more likely to offer up their licenses than men, even while fit to drive, while men may hold on to their licenses longer than they should. The main concern is that data supporting this may be only relevant to the current cohort of older people and will be different for the current generation of universally licensed women and men. There are two possible outcomes:

1. Past data are subject to cohort effects
2. Past data are not subject to cohort effects

If this is a cohort effect, then it is possible that in the future, older women (as with older men) who have been licensed their whole driving lives may also keep their licenses longer than they should. Combined with the anticipated growth in senior population in Canada, the number of older drivers who should not be driving may be far greater than today and may pose an increased personal and public safety risk. In that case, acceptable driving alternatives are needed that will allow people to maintain independence, mobility, and dignity. Simply renegeing driving privileges without any acceptable alternative is not an appropriate solution.

If this is not a cohort effect, and women continue to offer up their licenses more readily than men as they age, then a two-pronged solution is needed. One is a solution that provides older women the mobility and independence they require, and the other is a solution that allows older men to have acceptable alternatives while maintaining independence and dignity. The finding from the Charlotte County example that 90% of the members are women is noteworthy, as it confirms the assertion that many rural women (older women in particular) have unmet travel needs and seek out automobile alternatives. One major question remains: what kind of system and approach is needed to encourage male participation in driving alternatives? “Acceptable” alternatives need to be qualified.

DISCUSSION

It was difficult to administer a survey to the rural transportation providers contacted for this research that would return uniform results. Each provider was very different in terms of clientele and function, making it difficult to obtain comparative data or data detailed enough to be of use to transit planners. This was not known until the agencies were contacted. What was obtained was valuable information that spoke to the institutional and funding challenges faced by these operators, including their perspective of the issues of meeting the transportation needs of seniors in rural areas. The additional anecdotal evidence was very useful in providing context to the issues facing transportation service providers in New Brunswick. This information speaks to the need for policy reform and for more data to support that decision-making.

Most agencies only operated one bus. This would make sophisticated route planning and scheduling either unnecessary or burdensome. Some agencies had such low passenger volumes that there would no reason to employ routing and scheduling optimization since it would be unlikely to improve the existing operation. Some agencies were in charge of their clients schedules; others were demand-responsive. Other client and member-based

agencies having significant ridership could potentially benefit from employing scheduling tools, provided these tools could be easily employed and modified to accommodate real-time changes.

Anecdotally, no operator/agency was aware that the Canadian federal government had listed them on the “Access to Travel” website as providers of accessible transportation. While the website was a valuable resource for conducting this research, its value for use by rural older residents is questionable with only 24% of all Canadians over the age of 65 and only 58% of rural and small town residents accessing the internet in 2005 (37).

CONCLUSIONS

The rural automobile alternative transportation system in New Brunswick, including the system of accessible busses at the local level, and intercity bus and passenger rail at the regional level appears to be fragmented and inconsistent in availability. Many rural areas have no alternative transportation available at all, and of those that do, most struggle for ridership and all have funding issues. Alternative transportation that is available at the local level is a mix of non-profit associations, nursing homes, private companies and municipally-sponsored systems. Some taxi services are willing to serve rural areas, but at substantial cost. Alternative transportation at the intercity level consists of scheduled bus service between municipalities by one main carrier along major routes and by VIA passenger rail along the eastern coast of New Brunswick only. Ridership for intercity bus is steady or declining nationally and some argue economic regulation is stifling the industry.

The apparent lack of uptake of available accessible services in rural areas seems inconsistent with the assertion that rural residents (especially seniors) lack automobile alternatives. If seniors are in such dire need of transportation, should not these services generally have a regular following? Informal transportation networks are the most popular form of alternative transportation for seniors. The positive experience of organizations such as the Charlotte County Dial-a-Ride and ITNAmerica suggest that car-based, member-driven organizations are providing the kind of personal transportation service that non-driving seniors find more appealing. These “semi-formal” systems incorporate the main element of informal networks, namely, social connections. In the Charlotte County case, the service is not exclusive to seniors, but to anyone with mobility issues. Rural transit uptake in New Brunswick does not appear markedly different from places such as Kansas and North Dakota, where so-called “rural” transit does exist and is federally funded. This suggests it would be erroneous to conclude that a transportation service meets the transportation needs of a community by virtue of its provision.

The potential of an existing (but currently exclusive) rural transportation system of school busses is often overlooked. Given that substantial public funding supporting rural school bus networks in many jurisdictions, it is counterintuitive to restrict such a service to one user group, especially if others that need transportation. One cannot overlook the irony in the situation where such an elaborate system is provided for people who do not want to travel (kids to school), and so little is offered to those who do want and need to travel (seniors and other rural residents).

There is a need for further research into the travel habits of rural older drivers to determine the extent of their vehicle use for themselves, as an informal transportation network (for family and friends), and the potential for a semi-formal network to serve rural areas. Consideration also needs to be made for gender differences in transportation preferences. Data show most senior citizens in New Brunswick are women, and the literature highlights the mobility challenges of older rural women, but today there are more licensed older drivers who are men. In addition, the presence (or lack) of a cohort effect still requires understanding gender differences to assist with defining “acceptable” transportation alternatives. Understanding the travel behaviour of rural older drivers will assist with the quantification of anticipated need for transportation alternatives as the number of older people (and non-drivers) continues to increase for the foreseeable future.

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