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"Efficiency - Equity - Clarity"

Social Inclusion As A Transport Planning Issue in Canada

Contribution To The FIA Foundation G7 COMPARISON

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Summary

This paper discusses the concept of social exclusion as it relates to transport, how it is currently incorporated in Canadian transport planning, and the research needed to better address social exclusion. *Social exclusion* refers to constraints that prevent people from participating adequately in society, including education, employment, public services and activities. Inadequate transport sometimes contributes to social exclusion, particularly for people who live in an automobile dependent community and are physically disabled, low income or unable to own and drive a personal automobile. About 20% of Canadian households do not own an automobile, about 10% are low-income, and about 10% of the population has a disability that constrains mobility. Probably a third or more of households have at least one member who is transport disadvantaged. The term *social exclusion* is not widely used in Canada, but most transport officials are concerned with providing basic mobility to disadvantaged groups. Efforts to address transport-related social exclusion are mostly implemented at the local level. A wide range of transport and land use policies and programs can help improve social inclusion, many of which are often overlooked as possible solutions to this problem. Further research is needed to better evaluate the problem and potential solutions.

Introduction

Defining Social Inclusion and Exclusion

Social Inclusion refers to people's ability to participate adequately in society, including education, employment, public services, social and recreational activities. *Social exclusion* refers to constraints to adequate participation. This concept emphasizes that social institutions bear a responsibility to accommodate people's needs. For example, people who are unable to walk due to a physical disability are handicapped to the degree that society fails to provide facilities and services that allow them to access activities. In the past, such constraints were often described in terms of the individual's failure to accommodate the built environment, but increasingly the problem is defined as a failure of the built environment to accommodate people.

Many factors can affect social inclusion. Ignorance, poverty, language barriers, racism and classism can limit people's ability to participate in some activities. *Physical accessibility*, that is, people's ability to reach desired goods, services, activities and destinations (for simplicity sake we simply call these *activities* in this paper) is often an important factor in social inclusion, making this an important transport planning issue.

Social inclusion tends to be a relative rather than absolute factor. For example, a particular income level may be considered wealthy in one community and poverty in another. This occurs because the cost of living and social expectations tend to be higher in wealthier communities, so a greater level of expenditure is needed to maintain a given level of comfort and status. Similarly, transport needs tend to be relative, depending on a community's level of accessibility and social expectations. In more accessible communities it may be relatively easy to function without driving a car, so non-drivers enjoy social inclusion, transport financial costs tend to be relatively low, and driving is considered a luxury activity. In a more automobile dependent community, driving is a necessity, due to the dispersion of destinations, poor travel options for non-drivers, and because alternative modes (walking, cycling and public transit) are stigmatized. In such a community, non-drivers tend to experience social exclusion, and transport financial costs are higher, so lower-income households are relatively poorer and experience more difficulty and loss of social status.

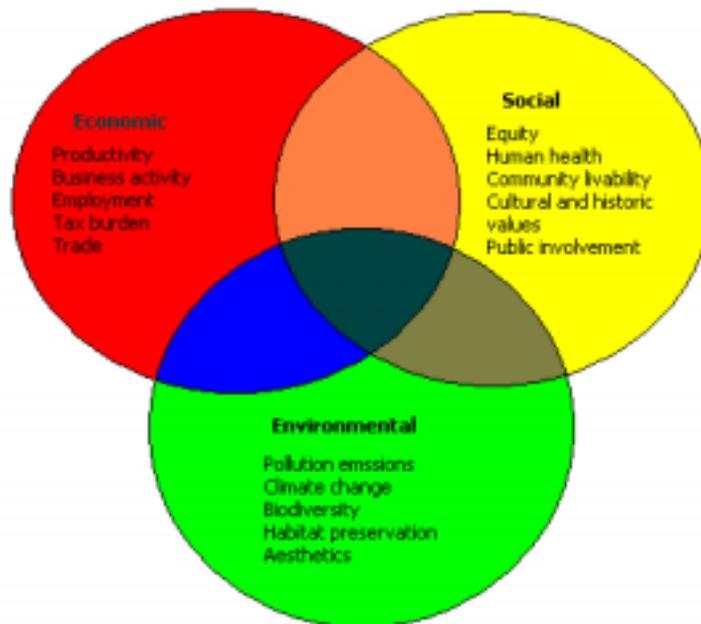
The term *social exclusion* is not widely known in North America. Transport professionals are more likely to use *transportation disadvantaged* or say that certain groups lack *basic mobility*, which refers to transport to access goods, services and activities that a community considers to have high social value. Basic mobility can be considered a merit good or even a right. It typically includes travel for:

- Emergency services (police, fire, ambulances, etc.).
- Health care.
- Basic food and clothing.
- Education and employment (commuting).
- Public services, mail, and freight distribution.
- A certain amount of social and recreational activities.

Historical Context

There are current efforts to expand the range of impacts considered in transportation decision-making. Existing transport evaluation techniques quantify economic impacts such as facility costs, travel time, vehicle operating costs and crash financial costs. These practices have been criticized as biased, and several current projects are intended to better incorporate environmental and social impacts, sometimes in the name of “full cost accounting” or “sustainable transportation.” Sustainability is often defined as development that balances economic, social and environmental objectives, as indicated in Figure 1. There has been recent progress to develop tools for quantifying environmental impacts, but there has been less progress in the development of tools for quantifying social impacts, such as social exclusion, for transport policy and planning analysis.

Figure 1 Sustainability Issues



This suggests that there is an important niche waiting to be filled, which involves:

- Defining transportation social impacts.
- Developing techniques for quantifying these impacts and comparing them with other impacts considered in transport policy and planning analysis.
- Educating decision-makers concerning transport social impacts and quantification techniques.
- Finding ways to integrate social objectives in transportation decision-making.
- Identifying “Win-Win” transportation strategies that help solve social problems while also addressing economic and environmental objectives.

Planning Goals

Social inclusion helps achieve two major transport planning goals: equity and economic development. These are discussed below.

Transport Equity

Transportation confers benefits and imposes costs, and affects people's opportunities to access goods, services and activities. Equity is often a transport planning goal. Even Adam Smith, the patriarch of market economic theory, wrote in 1776, "When the toll upon carriages of luxury coaches, post chaises, etc. is made somewhat higher in proportion to their weight than upon carriages of necessary use, such as carts, waggons, ??&c. the indolence and vanity of the rich is made to contribute in a very easy manner to relief of the poor, by rendering cheaper the transportation of heavy goods to all the different parts of the country." Most transportation policy decisions are evaluated with regard to equity impacts, and equity is often a primary goal of particular transport policies and projects.

However, people don't always mean the same thing when they think or talk about equity. There are three general types of equity related to transport, described below, and these are interpreted, evaluated and applied in many different ways.

1. *Horizontal Equity (also called "fairness")*

This is concerned with the fairness of cost and benefit allocation between individuals and groups who are considered comparable in wealth and ability. Horizontal equity implies that consumers should "get what they pay for and pay for what they get," unless there is a specific reason to do otherwise. Horizontal equity is often cited when communities compete for transportation resources, such as state or federal funding, and is the basis for cost allocation studies that compare how the costs imposed by different vehicle classes compare with their user payments.

2. *Vertical Equity With Regard to Income and Social Class*

This focuses on the allocation of costs between income and social classes. According to this definition, transport is most equitable if it provides the greatest benefit at the least cost to disadvantaged groups, therefore compensating for overall social inequity. This definition is often used to support transport subsidies and oppose price increases.

3. *Vertical Equity With Regard to Mobility Need and Ability*

This is a measure of how well an individual's transport needs are met compared with others in their community. It assumes that everyone should enjoy at least a basic level of access, even if people with special needs require extra resources. Applying this concept can be difficult because there are no universally accepted standards for transport need, nor a consistent way to measure access. Vertical equity by need/ability tends to focus on two issues: access for physically disabled people and support for transit and special mobility services.

There are often conflicts between these different types of equity. For example, vertical equity often justifies subsidies to benefit a disadvantaged group (such as discounted transit fares for student and elderly riders, and special mobility services for people who are physically disabled) which contradicts horizontal equity objectives.

People's experience and values tend to affect their perspective of transport equity. Certain ideologies tend to emphasize certain equity issues over others. For example, a "conservative" political ideology tends to emphasize horizontal equity, a "socialist" ideology tends to emphasize vertical equity with respect to income, while a "social progressive" ideology tends to emphasize vertical equity with respect to need and ability. Some perspectives emphasize the relative position of society's least advantaged members, suggesting that special consideration should be given to the few percent who are most economically, physically and socially disadvantaged (Rawls, 1972).

Another ideological issue is whether equity should be evaluated based on a *equity of opportunity* (meaning that society insures that disadvantaged people have equal access to education and employment opportunities) or *equity of outcome* (meaning that society insures that disadvantaged people actually succeed in these activities). Equity of opportunity is a narrower standard that tends to appeal to political conservatives, while equity of outcome is a broader standard that tends to appeal to political progressives. To the degree that transport is required for equity of opportunity, it reflects a basic requirement of social equity that even political conservatives can respect.

Economic Productivity

Social inclusion affects economic productivity and development goals as well as equity. For example, physical constraints that prevent an individual from obtaining an optimal education or employment reduce overall economic productivity and development. Social exclusion that contributes to problems such as crime, alcoholism and drug addiction reduce economic productivity directly by reducing employment, and indirectly by increasing demand on social and security services. This suggests that social inclusion for young people, unemployed and underemployed people, and people who are at risk for social problems, may have a particularly high value to society by increasing economic productivity. Targeted social inclusion programs can be justified to help reduce dependency on social assistance and unemployment programs, and as ways to help undeveloped geographic regions and blighted communities.

The fact that social inclusion can help achieve economic productivity as well as equity goals broadens the potential support. For example, social inclusion evaluation can be applied to economic development planning, and economic development funding can be used to support some social inclusion programs, such as those that help overcome barriers to education and employment by otherwise capable people.

Evaluating Transport Social Inclusion

Current transport policy and planning evaluation practices tend to focus on certain impacts, particularly government costs, travel time, vehicle operating costs and crash rates. More comprehensive evaluation frameworks are needed to better incorporate social and environmental impacts. Since these impacts tend to be difficult to quantify, more qualitative evaluation techniques may be needed. There are many possible ways to measure and evaluate social inclusion. Techniques suitable for use in transport planning are discussed below.

Factors Affecting Social Inclusion

Several transport-related factors affect a particular group or individual's social inclusion:

- *Access needs.* For example, people who are going to school, employed, or searching for work, and parents with children or children with elderly parents, tend to require access to more activities than people who are retired and have no dependents.
- *Location and land use.* In a more accessible location, destinations are closer together, reducing the amount of physical travel required to reach a given set of activities.
- *Mobility options.* People's ability to travel is affected by the quantity, quality and affordability of their travel options.
- *Mobility substitutes.* Telecommunications and delivery services can sometimes substitute for physical mobility, reducing the amount of travel needed to reach activities.

As an example, a physically-able person with no dependents who lives and works in a neighborhood which contains the services they need (medical clinics, shops, government offices), may experience an adequate level of accessibility even if they are a low income non-driver. However, if they live in a less accessible area where there are few nearby services, become primary caregiver to somebody who requires access to specialized school or medical facilities, lose their local job and must search for employment outside of their neighborhood, or become physically disabled and so is less able to walk to destinations, they are likely to experience social exclusion. The more responsibilities and physical, economic or social constraints an individual bears, the more likely they are to experience transport-related social exclusion.

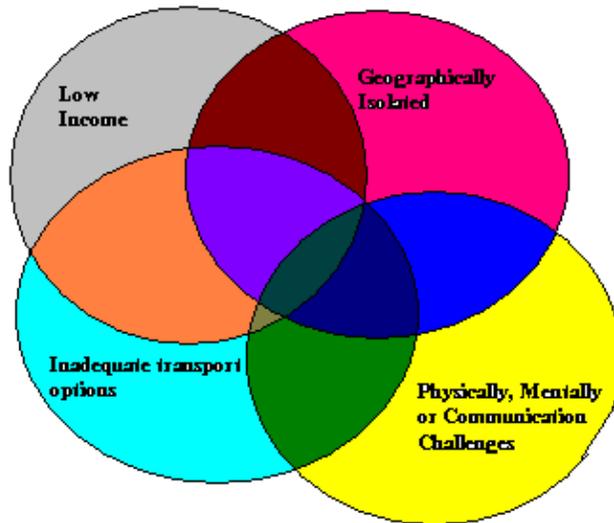
Table 1 Attributes That Affect Transport Social Inclusion

Transport Ability	Transport Need
<ul style="list-style-type: none"> • Non-drivers. People who cannot drive or do not have access to a motor vehicle. • Low Income. Drivers and non-drivers whose mobility is significantly constrained by financial limitations. • Disabled. People with disabilities that limit their mobility. 	<ul style="list-style-type: none"> • Commuter. People who must make daily trips to work or school. • Caregivers. Primary caregiver to non-driving dependents (children, elderly relatives, etc.). • Automobile Dependency. Lives in a community with automobile dependent transport and land use patterns.

This table indicates factors that contribute to a person having inadequate physical accessibility.

Table 1 summarizes transport-related factors affecting social inclusion. These factors often overlap. It is the cumulative effects that determine an individual's level of social exclusion, as illustrated in Figure 2. Strength in one area can partly compensate for weakness in another. For example, a person who cannot drive or walk who has abundant financial wealth can enjoy a high level of accessibility by hiring a chauffeur, but could still have fewer mobility options and destinations than if they were more physically able.

Figure 2 Social Exclusion Results From Multiple Challenges



A combination of factors that often overlap contribute to social exclusion. The more challenges a person faces, the more they are likely to be excluded from important activities and opportunities.

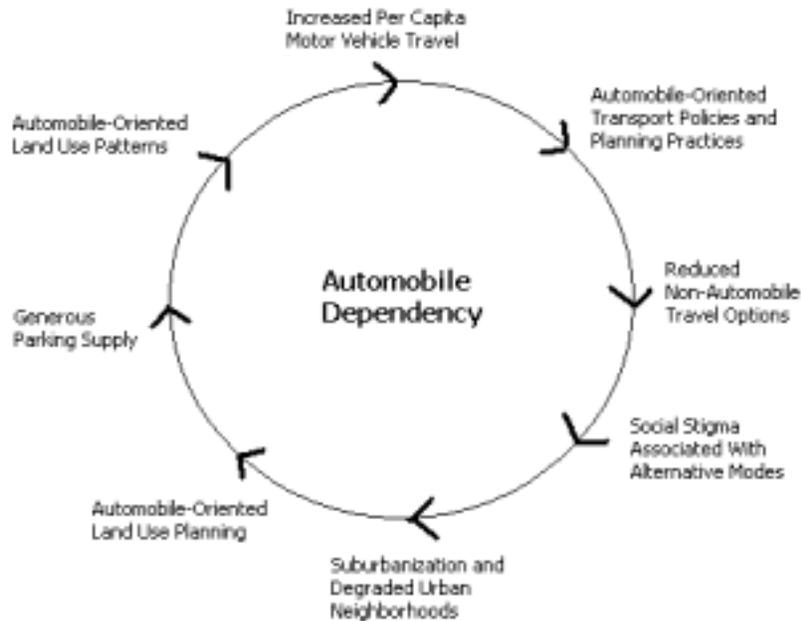
There are currently no widely accepted standards to determine adequate levels of social inclusion. Each community must determine its own standards and develop its own evaluation methods. Below are indicators that people experience as transport-related social exclusion. Not everybody in each category faces severe social exclusion under all circumstances, but the more these factors apply to an individual or group, the greater degree of social exclusion they are likely to experience.

- Households that do not own an automobile (sometimes called zero-vehicle households).
- People who do not have a drivers license.
- People with significant physical or mental disabilities.
- Low-income households.
- People who are unemployed or underemployed.
- People on social assistance and other programs to help disadvantaged groups.
- People too young to drive, or being elderly (i.e., over 70 years of age).
- Recent immigrants from developing countries, who tend to face language barriers, social isolation, poverty, unemployment, and low rates of vehicle ownership and drivers' licensing.

Automobile Dependency As A Social Exclusion Issue

Automobile dependency is the cumulative effect of transport and land use patterns that increase motor vehicle travel reduce transport alternatives. The opposite of automobile dependency is not a total lack of private automobile ownership and use, rather, it is a *balanced* or *multi-modal* transport system, meaning that consumers have a variety of transport options, and incentives to use each for what it does best.

Figure 3 Cycle of Automobile Dependency



Automobile dependency results from a cycle that increases vehicle travel and reduces alternatives.

Automobile dependency increases social exclusion by reducing non-automobile travel options and increasing total transport costs. Although increased wealth and vehicle ownership tend to reduce social exclusion for *individuals*, such trends tend to increase automobile dependency and therefore social exclusion at the *community level* by making some groups relatively disadvantaged.

This problem can be defined in two different ways which suggest two different approaches to improving social inclusion. One involves accommodating automobile dependency by improving mobility options for non-drivers, for example by making cars more affordable and subsidizing special mobility services. The other approach involves reducing the overall degree of automobile dependency and improving accessibility. For example, to insure that students in transport disadvantaged households can get to school, officials can either fund special bus services (a mobility-oriented solution), or they can locate schools and manage road systems to insure that most students can easily walk to schools (an accessibility-oriented solution). Of course, most communities use a combination of approaches, but some tend to emphasize one or another. Accessibility-oriented solutions tend to provide the greatest benefit to transport disadvantaged people.

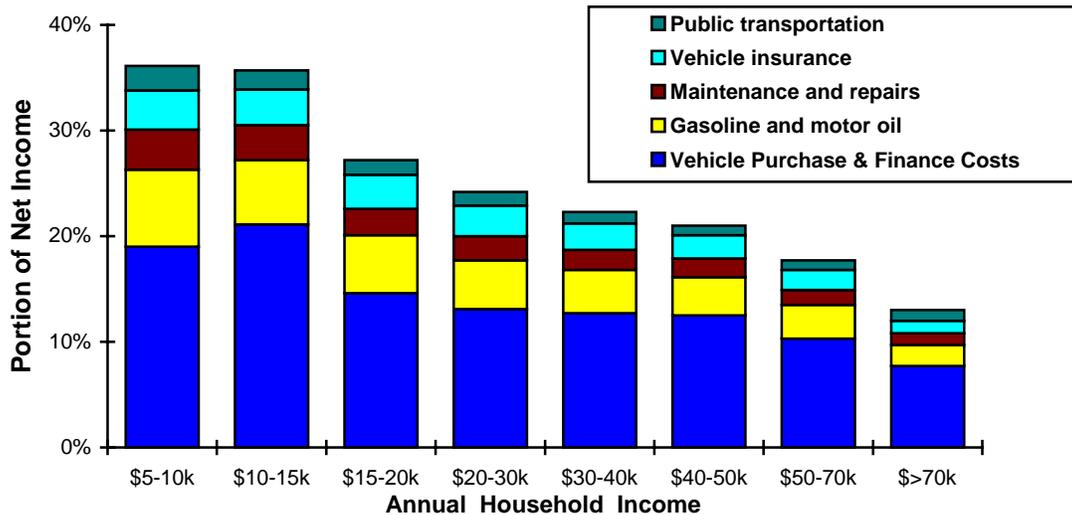
Affordability

Transport decisions have various impacts on consumer budgets. Households often face a tradeoff between housing and transport costs: in many cities, lower-cost housing is located in automobile dependent areas at the urban fringe. As a result, lower-income households face a choice between unaffordable housing or excessive transport expenses and reduced accessibility for non-drivers.

Transport costs impose a significant financial burden on some households, particularly those with lower incomes that are located in automobile dependent areas. This is a common problem in many North American communities. This can affect social inclusion directly (by making it difficult to afford transport) and indirectly (by reducing the amount of money left for other activities, such as food, housing, education, etc.). This problem is not always evident in travel data. For example, many low-income households own motor vehicles and use them for much of their travel. The problem is not inadequate mobility, but rather unaffordability, unreliability and lack of alternatives.

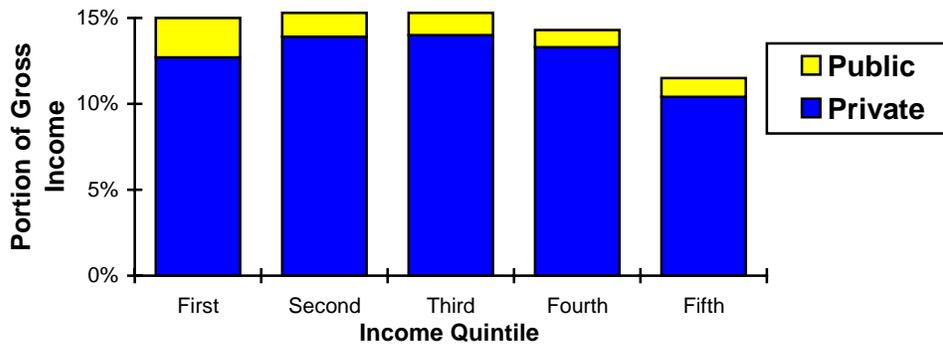
As a general reference, transport costs can be considered unaffordable if they exceed 20% of a household's income. For a wealthy household earning \$100,000 annually, this allows a generous \$20,000 to be spent annually on transport, but for a low-income household earning \$20,000, this leaves just \$4,000. In the US, low-income household tend to spend an excessive portion of their income on transport (Figure 4). Low income households devote about a third of total income to transport, mainly automobiles, nearly twice the overall average. This indicates that transport costs are regressive with respect to income.

Figure 4 Portion of US Household Income Spent on Transport (BLS, 2000)



Transport expenditures are highest as a portion of income for lower-income households, indicating that automobile dependency is a financial burden to the poor. This reflects US data.

Figure 5 Portion of Canadian Income Spent on Transport (SC, 2001b)



Canadian data shows less transport cost regressivity.

Although it is possible to purchase a car for just a few hundred dollars, such vehicles tend to be unreliable and inefficient. As a result, lower-income motorists face constant risk of vehicle failure, repair and replacement costs. Vehicle insurance is a significant financial strain for low-income motorists. Many are in higher-risk categories due to age, claims history and territory rating factors, and so must either devote an excessive portion of their income to vehicle insurance, driving uninsured (illegal in many jurisdictions), or foregoing automobile ownership. Young male drivers pay particularly high rates.

On the other hand, a low- or moderate-income household can easily and affordably satisfy their basic travel needs by using a combination of walking, cycling, ridesharing, transit services and occasional vehicle rentals. Mobility management strategies that improve these options, and help create multi-modal communities, can significantly increase transportation affordability.

In addition, parking costs and road taxes can be a major component of housing costs, and a limiting factor in the development of more affordable housing. For example, if zoning codes require two parking spaces per unit, parking costs can become a quarter of the total costs of constructing a lower-cost apartment or condominium in an urban area with high land costs, and local funding for roads and parking facilities can represent hundreds of dollars a year in property taxes for an average household (Russo, 2001). As a result, transport policies and practices and their land use impacts can have major effects on the financial conditions of lower-income households, and transport and land use policy reforms can help increase overall affordability.

Household transport costs are related to land use conditions. Households in automobile dependent regions devote more than 20% of their expenditures to transport, while those in communities with more efficient land use spend less than 17% (McCann, 2000). Rural residents spend more on transport than urban residents in absolute terms and as a portion of income (SC, 2001). This suggests that lower-income households located in automobile dependent areas face particular hardship from unaffordable transport.

Transport and housing cost savings are equivalent to increased household income. For example, in an automobile dependent community, a household with two employed adults needs to own two automobiles, costing approximately \$10,000 a year, but in a community with a more diverse transport system, the same household may only need one car, plus \$1,000 in transit and taxi fares, saving \$4,000 annually. This is equivalent to more than \$5,000 in additional pre-tax income.

Performance Indicators

Performance indicators (also called *measures of effectiveness*) are practical ways to measure progress toward objectives. These tend to be useful for evaluating conditions and impacts that are difficult to quantify, which is true of many factors associated with social exclusion. A number of performance indicators can be used to evaluate transport system quality and impacts on social inclusion. In most cases, no single indicator is adequate, so a set of indicators that reflect various objectives and perspectives are used. These may include both quantitative measures of mobility and access, and qualitative measures of user acceptance and satisfaction.

A good performance indicator:

- Tells how well goals and objectives are being met.
- Is meaningful, understandable, logical, and repeatable.
- Is unambiguously defined.
- Is suitable for comparison and trend analysis.
- Uses data that is economical to collect.

Conventional Transport Performance Indicators

Conventional transport indicators mostly consider motor vehicles traffic conditions. Below are examples.

- Roadway level-of-service (LOS), which is an indicator of vehicle traffic speeds and congestion delay at a particular stretch of roadway or intersection.
- Average traffic speeds.
- Average congestion delay, measured annually per capita.
- Consumer vehicle travel costs.

A conventional approach to evaluating social inclusion would be to apply these indicators to vulnerable populations, for example, measuring the average speed of transit buses to indicate the quality of mobility for non-drivers, and fuel prices as an indicator of the affordability of driving to lower-income households. Because they only consider motor vehicle travel conditions, evaluating a transport system based on these factors tends to favor automobile-oriented improvements over other objectives and solutions, and they tend to be insensitive to other factors that may also be important, such as transit system comfort, and the ease and security of walking in an area.

Comprehensive Performance Indicators

A more comprehensive set of transport system performance indicators takes into account more access options and impacts. Below are examples. These can be disaggregated to evaluate impacts on vulnerable groups. For example, indicator results can be compared between higher and lower income households, physically able and disabled people, and between members of minority populations and the general populations.

- *Land use accessibility* - Average number of basic services (schools, shops and government offices) and jobs within walking distance of residences.
- *Children's accessibility* - Portion of children who can walk or cycle to schools, shops and parks from their homes.
- *Electronic accessibility* - Portion of population with Internet service.
- *Commute speed* - Average commute travel time.
- *Transport diversity* - Variety and quality of transport options available in a community, including walking, cycling, ridesharing, public transport and taxi services.
- *Mode split* - Portion of travel made by walking, cycling, rideshare, public transit and telework. Greater diversity is better.
- *Transit service* – Public transit service quality, including coverage (portion of households and jobs within 5-minute walking distance of 15-minute transit service), service frequency, comfort (portion of trips in which passenger can sit and portion of transit stops with shelters), affordability (fares as a portion of minimum wage income) and information availability.
- *Nonmotorized transport* - Quality of walking and cycling conditions.
- *Consumer Transport costs* - Portion of household expenditures devoted to transport.
- *Affordability* - Portion of household expenditures devoted to transport, particularly by people who are economically, socially and physically disadvantaged.
- *Delivery services* - Quantity and quality of delivery services (international/intercity courier, and stores that offer delivery).
- *User rating* - Overall satisfaction rating of transport system and services by users.
- *Citizen involvement* - Public involvement in transport planning process. Higher is better.
- *Community livability* - Degree to which transport activities increase community livability (local environmental quality). Higher is better.
- *Basic access* – People's ability to access socially valuable activities such as medical services, education, employment and essential shopping, particularly for disadvantaged populations.
- *Horizontal equity (fairness)* - Degree to which users bear costs unless a subsidy is justified.
- *Progressivity* - Degree to which transport policies benefits lower-income people.
- *Mobility for non-drivers* - Quality of accessibility and transport services for non-drivers.
- *Mobility for people with disabilities* - Quality of transport facilities and services for people with disabilities, such as wheelchair users and people with visual impairments.
- *Special problems* – Special problems to disadvantaged populations identified by social service providers and users (for example, using targeted surveys).

Social Exclusion Index

It is often helpful to have a quantified index for comparing and tracking impacts over time, and for evaluating potential solutions. Such an index can help planners determine which geographic or demographic groups experience significant social exclusion and how resources to improve social inclusion are most effectively invested.

I propose the Transport Social Exclusion Index as described in Table 2. It uses six factors that represent various aspects of accessibility, rated from 0 to 5 using various indicators, giving a maximum rating of 30. An individual or group that rates low (say, below 10) on this scale could be considered to face significant problems from social exclusion. Of course, these factors and indicators can be adjusted or weighted as needed to reflect different conditions and priorities.

Table 2 Transport Social Exclusion Index

Factor	Definition	Indicators	Rating
Mobility Need	Number of “essential” trips outside the home a person must make.	From 5, subtract one point each for: enrolled in school, employed outside the home, is a primary caregiver (responsible for children or disabled adults), has special medical requirements (such as dialysis), has other responsibilities that require frequent travel.	
Land Use Accessibility	Average travel distance to common destinations, based on land use clustering and mix, and roadway network connectivity.	One point for each different type of public services (food store, other retail shops, post office, school, park) within 0.5 kilometer of residences.	
Physical and Communication Ability	An individual’s physical and communications ability.	One point for being able to walk one kilometer, bicycle 3 kilometers, speak and read the local language, has residential telephone, has residential Internet service.	
Automobile Access	An individual’s ability to use an automobile.	One point for having a drivers license, one point for having a vehicle rental or carshare service within the residential neighborhood, one point for living in a household that owns at least one motor vehicle, one point for owning a personal (not shared) car, one point for having a major paved highway within 5 kilometers of home.	
Mobility Options	Number of non-automobile mobility options available to an individual for local travel.	One point each for convenient universal design (pedestrian facilities designed to accommodate people with disabilities) walking, cycling, local public transit and taxi service.	
Financial Wealth	Ability to pay for transport services.	One point for each income quintile.	
Total			

This index rates each factor from 0 (worst) to 5 (best), resulting in a total rating from 0 to 30. The results indicate the degree to which an individual or group experiences significant social exclusion due to transport-related constraints.

Social Exclusion As A Transport Issue In North America

North America is very mobile, with high rates of vehicle ownership and motorized travel. Automobile ownership is approaching saturation (a vehicle for each driver), particularly for non-poor households living outside of a few large cities (New York, Montreal, Toronto and Ottawa). Transport systems and land use patterns have become increasingly automobile-oriented, and the quality of travel alternatives (walking, cycling, public transit and other non-automobile options) has declined. As a result, social exclusion is increasing for non-drivers. These trends are particularly pronounced in the U.S., but the differences are declining as Canada catches up, as indicated in the table below.

Table 3 Per Capita Automobile Ownership

	Canada	US	UK
1996	0.46	0.79	0.41
2000	0.60	0.82	0.42
<i>Change</i>	30%	4%	2%

Canadian vehicle ownership grew substantially during the 1990s to approach that of the U.S.

Longer lifespans and the baby boom generation is significantly increasing the elderly portion of the population. Although automobile ownership and use decline for people over 65, this appears to be less pronounced than in the past, so age by itself is not necessarily a strong indicator of transport social exclusion. For example, many 70+ year people continue to drive. There is some debate as to whether this creates traffic risk problems, since elderly drivers tend to have relatively high crash rates per vehicle-mile, but relatively low crash rates per vehicle-year due to declining annual mileage.

North American transport professionals struggle with social exclusion issues, although few are familiar with the term. They are more likely to talk about the need to provide *basic mobility to transportation disadvantaged* groups, such as the following:

- *People with physical or mental disabilities.* There is a strong commitment to *universal design*, that is, designing transport facilities and services to accommodate people with disabilities and other special needs. The U.S. *American With Disabilities Act (ADA)* establishes strict standards and requirements for governments and businesses to accommodate the needs of people with disabilities. Similar standards and design guidelines have been adopted at the state, provincial and local level by many North American jurisdictions.
- *People with low incomes.* There is broad support for policies that minimize the cost of owning and driving an automobile (e.g., low fuel taxes, registration fees based on a vehicle's value, unpriced roads and parking, etc.).
- *Non-drivers* (people with low incomes, elders, children, immigrants, etc.). There is broad support for public transit even where it is not justified on transportation efficiency grounds (i.e., to reduce traffic congestion, parking problems and pollution emissions).
- *Rural non-drivers.* Rural communities often maintain special mobility services to meet the needs of non-drivers, including ridesharing programs, volunteer-run van services, informal taxi services, etc.

Canadian Conditions

Factors that affect social exclusion as a transport issue in Canada are discussed below.

Geography and Climate

Canada is geographically diverse and unique. It is the second largest country in the world (9,971,000 square kilometres), with cosmopolitan cities, growing suburbs, huge rural farming regions, small towns, mountains, shoreline, islands, and extreme wilderness, each of which presents unique social exclusion transport issues. It is a northern country with areas of severe winter cold and one of the lowest national population densities in the world, although these factors are somewhat deceiving, since the majority of the country's population is located close to the southern border, mostly in a few large urban regions (Toronto, Montreal, Ottawa, Calgary and Vancouver). As a result, most Canadians live in urban communities similar to those in northern U.S. and European areas, while a small minority experience climatic extremes and geographic isolation.

Canadian cities are more multi-modal than in the U.S., with relatively walkable neighborhoods and high levels of per capita public transit use. Canadian wages are somewhat lower and fuel prices somewhat higher than in the U.S., resulting in lower per-capita vehicle ownership and annual mileage. However, automobile ownership has increased, communities are increasingly automobile-dependent and transit use has declined, so Canadian travel patterns are converging with those in the U.S. In major Canadian cities, social exclusion is primarily associated with poverty, physical disabilities and immigrant populations.

Like the rest of North America, a growing portion of the Canadian population lives in automobile-dependent suburbs. In these areas social exclusion is associated with various combinations of poverty and inability to drive.

Some parts of Canada are rural, with small, dispersed settlements. These include the Maritime, Pacific Coast and mountain regions, where development occurred in small and often isolated fishing, lumber and mining communities, and the Prairies, where farms are large and dispersed. In these areas social exclusion is associated with physical isolation between homes and settlements, and between settlements, compounded in the winter by cold weather, frost and snow.

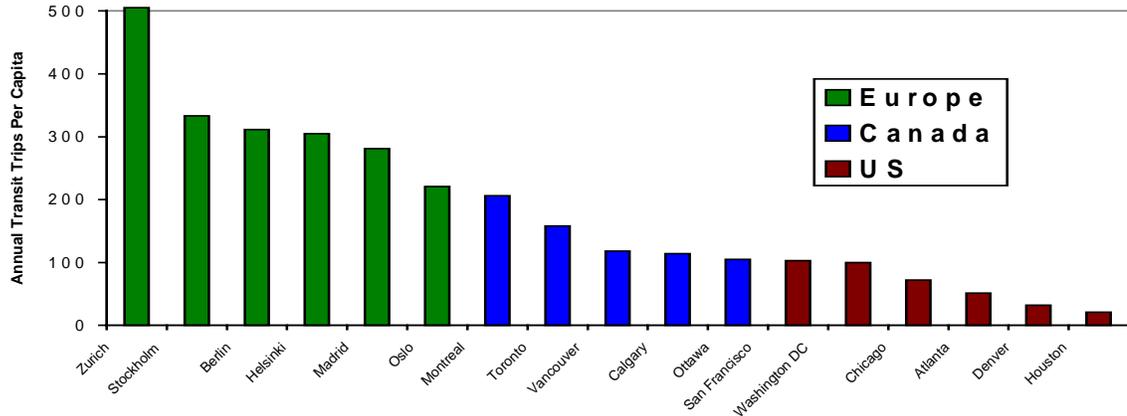
A small portion of the Canadian population lives in extremely isolated wilderness areas in the far north and Rocky Mountains. These include First Nations (i.e., American Indian and Eskimo or Inuit) communities, various outposts and resorts, and some settlements that develop around special isolated resources, such as mines. In these areas, most residents experience some degree of social exclusion, at least compared with most other Canadian communities.

Residents of rural First Nations communities tend to be particularly vulnerable to social exclusion, due to a combination of physical isolation, poverty, limited education and employment options, and social problems such as alcoholism.

Automobile Dependency

Canadian cities tend to be somewhat more multi-modal than in the U.S., but less so than in Europe, as indicated by differences in per capita transit ridership (Figure 6), per capita vehicle ownership rates, development densities and other factors.

Figure 6 Annual Transit Trips Per Capita (McCormick Rankin, 2002, Exhibit 3.4)



Canadian cities have lower per capita transit ridership than comparable cities in Europe, but higher than in the U.S. This is an indicator of the overall quality of travel options for non-drivers.

Poverty

Statistics Canada establishes a *low-income cutoff* that takes into account household size and geographic location. Table 4 shows how poverty varies with household type. Poverty is particularly high among Minority and Aboriginal (American Indian) families. About 36% of Minority population, and about 45% of Minority children under the age of six were in low-income families in 1995, compared with 26% for all children. For people aged 65 and over, the incidence of low income was 32% among the visible minority groups, as opposed to the national average of 19%. Poverty rates are more than double among Aboriginals. In 1995, 44% of the Aboriginal population was below Statistics Canada’s low income cut-offs, compared with the national rate of 20%.

Table 4 Selected Income Statistics For Low Income Families By Family Structure, Canada 1995 (www.statcan.ca/Daily/English/980512/d980512.htm)

Household Type	Total Population	Poverty Population	Percent Poverty
All economic families	7,784,865	1,267,205	16.3%
Total husband-wife families	6,500,645	759,630	11.7%
Married couples only	2,487,735	252,765	10.2%
Married couples with never-married children only	3,614,895	456,930	12.6%
Other married couples	398,015	49,935	12.5%
Total non-husband-wife families	1,284,220	507,575	39.5%
Male lone-parent families	164,240	39,325	23.9%
Female lone-parent families	826,365	396,245	48.0%
All other non-husband wife families	293,615	72,005	24.5%

This table compares rates of poverty among various household types.

Vehicle Ownership

As mentioned earlier, Canada has a relatively high rate of private vehicle ownership, which is approaching one vehicle per driver. About 80% of households own at least one motor vehicle. Vehicle ownership rates are much lower for lower-income households, as indicated in Table 5.

Table 5 Household Vehicle Ownership by Income Quintile (SC, 2001b)

	All Households	First Quintile	Second Quintile	Third Quintile	Fourth Quintile	Fifth Quintile
Average number of adults per household 20+ years.	1.91	1.27	1.69	1.93	2.15	2.5
Zero vehicle households	21%	53%	23%	12%	8%	7%
One vehicle	45%	41%	57%	53%	43%	30%
Two or more vehicles	35%	6%	19%	35%	49%	63%

Rates of vehicle ownership increase with income. About half of the lowest income quintile households do not own a motor vehicle.

Disability

A study by Statistics Canada provides relatively detailed information on the number of people with various types of disabilities in Canada, summarized in Table 6 and Figure 7.

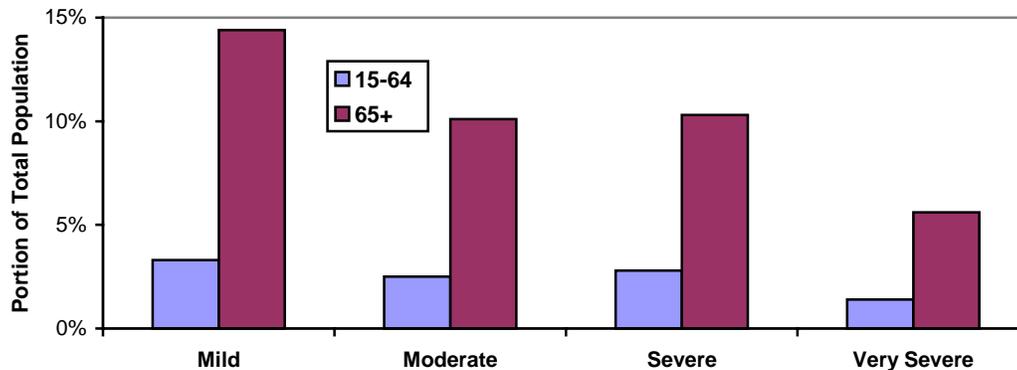
Table 6 Type of Disability (www.statcan.ca/english/IPS/Data/89-579-XIE.htm)

Type	Definition	0-14	15--64	65+	Total	%
Hearing	Difficulty hearing what is being said in a conversation.	23,750	462,980	575,160	1,061,890	3.7%
Seeing	Difficulty reading ordinary newsprint.	16,600	290,810	303,540	610,950	2.1%
Speech	Difficulty speaking	66,940	240,160	122,560	429,660	1.5%
Mobility	Difficulty walking 0.5 km, up-and-down stairs, moving from one room to another.	21,150	1,320,170	1,131,400	2,472,720	8.5%
Agility/ Dexterity	Difficulty bending, dressing, cutting food.	31,410	1,230,670	1,046,310	2,308,390	8.0%
Pain	Limited in the amount of activity that one can do because of long-term pain.	NA	1,489,460	887,270	2,376,730	8.2%
Learning	Difficulty learning.	100,360	377,410	74,000	551,770	1.9%
Memory	Limited in the amount of activities one can do due to confusion or difficulty remembering things.	NA	267,700	153,050	420,750	1.5%
Developmental	Cognitive limitations due to disorders such as Down syndrome, autism or mental impairment .	46,180	109,060	11,080	166,320	0.6%
Psychological	Limited in the amount of activities one can do due to an emotional, psychological or psychiatric condition.	49,140	429,350	93,590	572,080	2.0%
Chronic	Limited in the amount of activities one can do due to an illness such as asthma, allergy, etc. (children only)	117,510	NA	NA	117,510	0.4%
Unknown		7,280	53,550	42,620	103,450	0.4%

This table shows number of Canadians with various disabilities. A individual can be counted more than once if they experience multiple disabilities.

Not everybody in each disability category necessarily suffers significant social exclusion associated with transport. For example, a speech or hearing disability does not significantly limit a person's ability to walk, cycle, use transit or drive a car, and people with some very severe disabilities seldom travel outside of their residence at all, and so would not be affected by transport service improvements. Visual, mobility, agility and pain disabilities are most likely to contribute to transport-related social exclusion. An estimated 20% of the Canadian population experiences these disabilities, including about 15% of people age 15-64 and about 60% of people 65 or older (assuming an average of 50% overlap among these disabilities). Because mobility-limiting disabilities are so common among elderly people, age can be considered an indicator of transport-related social exclusion.

Figure 7 Degree of Disability By Age Group (SC, 2002, Table 8)



This figure illustrates the portion of the adult Canadian population classified as disabled.

Geographic Isolation

Although most Canadians live in cities or towns, a significant number are rural. There are various ways to defining *rural*, resulting in estimates of the rural population that range from 22% to 38% of the total Canadian population (SC, 2001c). Some of these definitions include residents of smaller towns (1,000 to 10,000 population) and rural communities within commute distance of a city, that may have adequate access to public services and so do not necessarily experience social exclusion related to transport, although residents of such areas who have other mobility problems (cannot own or drive an automobile, are disabled) may experience a greater degree of social exclusion than they would if they lived in a more urbanized area.

People who live in truly isolated areas tend to experience problems associated with social exclusion including higher rates of unemployment, lower wages, higher transportation costs (both in absolute terms and as a portion of household income) and longer travel distances to important activities, such as medical services, but rural residents tend to have lower rates of poverty (taking into account their lower cost of living) and less income variation than in urban areas (for information see the *Rural and Small Town Canada Analysis Bulletins* available from Statistics Canada at www.statcan.ca:80/english/freepub/21-006-XIE/free.htm).

A study by Garnet and Poulton (1994) examined the travel patterns in Advocate, Nova Scotia, a rural community which lost its public bus service in 1987. Most residents live in an automobile-owning household, although even in car-owning households some residents report difficulty obtaining rides. Researchers found that non-driving residents did experience some transport problems (i.e., traveling to town less frequently and missed appointments due to a lack of mobility), but that informal ridesharing by residents who drive partly replaced the lost public transit service.

A Statistics Canada study found that the average rural resident lives 10 kilometers from a physician, compared with 2 kilometers for urban residents, and that 7% of rural residents live 25 kilometers or more from a physician (SC, 1999b). This results from a combination of longer travel distances and fewer physicians per capita (there are about 2.5 physicians per 1,000 population in cities and less than 1.0 physicians per 1,000 population in rural areas). Residents of far northern communities are particularly isolated from medical services. Of the 16,000 residents living in the 65-69° latitudes, two-thirds live more than 100 kilometers from a physician, and no physicians normally live above 70° to serve the 3,300 residents of that region. However, medical services are still available in remote areas through medical clinics staffed by nurses and temporary physicians.

Public Policy

Canada has a strong tradition of social programs, particularly compared with the U.S., including provincial healthcare, relatively generous education and welfare services, and various types of local community planning. However, Canadian governments tend to spend relatively little on public transit and related services per capita.

The federal government is much less involved in planning and funding personal transport in Canada than in most developed countries. Federal transport policy is primarily concerned with rail, marine and air travel, and is divesting itself of direct services (such as passenger rail) and facilities (such as airports). The federal government occasionally provides special infrastructure grants, which may include some local transport projects, but has no ongoing planning or funding. Transport Canada recently developed a national urban transit vision (TC, 2001), but the federal government has done little to implement improvements or provide services or funding to address social exclusion.

Provincial governments manage major highways. Local roads and most transit services are funded and managed at the local level. As a result, social exclusion is primarily considered at the local level, as a component of local transport planning, and sometimes by provincial agencies dealing with special client groups or communities.

Canada does not have a national standard for universal design, such as the Americans with Disabilities Act, but many jurisdictions are implementing improvements to better accommodate people with disabilities.

Data Availability

Canada has no standard process for collecting national transport data, a consequence of the near-absence of a direct federal role in roadway planning and investment. In recent years the federal government has sponsored an annual Canadian Vehicle Survey (www.tc.gc.ca/pol/en/cvs/cvs.htm), which collects data by type of vehicle, age and sex of driver, time of day and season, but is inferior to the U.S. National Household Travel Survey or the UK National Travel Survey because it does not track other travel activities. Statistics Canada collects data on household vehicle ownership and expenditures, but only occasionally performs studies of travel behaviour, and these tend to be focused on a particular transport activity, such as commuting or leisure travel. Most transport data is collected by local planning agencies as part of local and regional transport planning, often simply for use in peak-period traffic models, and so little demographic data is collected. As a result, it is difficult to evaluate and compare social exclusion between different Canadian regions, over time, or with other countries.

Summary: Extent of the Problem

Canada is a wealthy, mobile and diverse country, resulting in large disparities in the quality of accessibility between different geographic areas and demographic groups. Automobile dependency is increasing in many Canadian communities, which tends to increase transport-related social exclusion problems.

A number of specific factors contribute to social exclusion. About 20% of Canadian households do not own a motor vehicle, about 10% of households are both low-income and do not own an automobile, and about 10% of the population has disabilities that tend to limit mobility. At any one point in time some households experience temporary mobility problems due to vehicle failures or disabled drivers. Residents of more isolated communities tend to experience problems accessing basic activities and services. Lower income residents of automobile dependent communities are likely to spend an excessive portion of their household budgets on transport. Many of these groups overlap, resulting in various degrees of transport-related social exclusion problems that affect 10-30% of the Canadian population, and indicating that probably a third or more of households have at least one member who is transport disadvantaged. Some groups, such as Minority and Aboriginal people, and low-income single parents, are particularly likely to have multiple factors that contribute to transport-related social exclusion.

However, it would be a mistake to assume that every person in these categories faces significant transport-related social exclusion problems, or that transport improvements are necessarily the best way to improve social inclusion. The exact extent of these problems, how these impacts compare between groups within Canada and with other countries, is difficult to determine due to limited and inconsistent data.

Canada generally has strong social programs, but there is little national effort to coordinate local transport planning or address transport-related social exclusion problems. Most solutions to this problem are implemented at the local level, resulting in diverse types and quality.

Transport Strategies To Improve Social Inclusion

A variety of mobility management strategies can help achieve various social inclusion objectives (VTPI, 2003). Examples are listed below.

Automobile Dependency

This includes various strategies that create more balanced transport systems and multi-modal land use patterns.

- Transport planning and funding reforms to correct current policies that favor automobile-oriented road and parking improvements at the expense of other travel modes.
- Land use planning reforms to create more accessible land use.
- Pricing reforms that increase the cost of automobile use (for example, road and parking pricing, and Pay-As-You-Drive insurance and registration fees).

Land Use Accessibility

This includes various strategies that improve accessibility by reducing the distance between common destinations and creating more multi-modal communities.

- “Smart Growth” development policies that favor infill, clustered, mixed use development.
- Location-efficient development, which means locating more affordable housing and employment in accessible area., and reducing parking requirements for households located in accessible neighborhoods that own fewer than average vehicles.
- Policies that encourage or require public facilities (schools, post offices, transit stations, etc.) to be located where they are most accessible, particularly for disadvantaged populations.
- Car-free planning, which means that some neighborhoods are designed to accommodate the transportation needs of non-drivers, and restrict private automobile use to create more walkable communities.
- Rural community transport management programs, which involves various strategies that improve transportation options in lower-density, rural communities.

Affordability

This includes various strategies that make travel more affordable to people who are transport disadvantaged.

- Lower fares for transport services that tend to be used by disadvantaged populations, such as keeping bus fares low.
- Targeted transport service discounts and subsidies, such as need-based discounts for transit fares, taxi services, road tolls and parking fees.
- Carsharing and Pay-As-You-Drive vehicle insurance and registration fees, which makes vehicle ownership more affordable to lower-income households.
- Ensuring that affordable housing is located in accessible areas, so households can save on both housing and transport costs.
- Reducing parking and local taxes used to fund roads for households that own fewer than average automobiles.

Mobility Options

This includes various strategies that improve travel options, particularly for people who are physically, economically or socially disadvantaged.

- Transit service improvements, including improvements in regular transit service, redesigning regular transit facilities and vehicles to better accommodate people with disabilities, and special mobility services (such as door-to-door para-transit services).
- Pedestrian and cycling improvements.
- Traffic calming, home zones and traffic speed controls.
- Universal design, which means that transport facilities and services accommodate a wide range of users, including people using wheelchairs or have other disabilities.
- Roadpricing and HOV priority, which gives transit and rideshare vehicles priority over single-occupant vehicles.
- Travel information improvements, such as more convenient bus and taxi information, and direction services for people with visual disabilities.
- Ridesharing programs, that match motorists and riders.
- Employee trip reduction programs through which employers can offer ridesharing, flex-time, telecommuting and guaranteed ride home (GRH) services.
- Address security concerns, which means increased efforts to reduce risk of assault to pedestrians, cyclists and transit riders.
- Taxi service improvements, may include increasing the number of taxis in a community, setting higher standards for taxi service, allowing more flexibility (such as shared rides to reduce fares), subsidizing fares for disadvantaged users, and specifying taxis that accommodate wheelchairs and other people with special needs.
- School and campus transport management programs, which help parents, students and employees use alternatives to driving to schools and college campuses.
- Marketing strategies that improve the status of alternative modes, such as transit, ridesharing and cycling, so they receive greater social acceptance and use.

Mobility Substitutes

This includes various strategies that improve access without increasing physical travel.

- Telework, by insuring that residents have Internet service.
- Delivery services, such as insuring that some shops in a community deliver goods with minimal extra charge.

Many of the strategies described above are “win-win solutions,” that is they are justified on economic grounds (i.e., they increase productivity and help reduce economic costs such as traffic congestion, facility costs, vehicle costs), and so provide “free” social benefits. This is not to suggest that there are no costs or barriers to their implementation, but it does mean that if properly planned and implemented society can benefit overall, regardless of the economic value assigned to their social benefits.

Risks and Barriers

A major risk to addressing social exclusion problems is the possibility that planners will focus on a few small groups of transport disadvantaged people, and governments will implement token solutions that only address a small portion of the total problem. For example, a government might introduce special paratransit services with only enough funding to meet a small portion of demand, or they may introduce universal design standards that meet the needs of wheelchair users, while ignoring the mobility problems facing other mobility disadvantaged groups, such as lower-income suburban non-drivers.

A related risk is that a particular government will establish special mobility services, and after vulnerable populations become dependent on it, future governments reduce or eliminate funding. For example, suburban public transit service may encourage non-drivers to move to outlying suburbs and planners to locate public facilities (such as schools or hospitals) at the urban fringe, but future funding cutbacks may make these locations even less accessible to people who are transport disadvantaged.

A barrier and risk is that the methods used to evaluate transport-related social exclusion can be ineffective, biased or captured by special interests. This can occur because social inclusion is a complex issue, and planners tend to prefer “objective” quantitative data over “subjective” data such as user attitude surveys. As a result, they may undervalue difficult-to-measure factors such as users’ convenience, comfort and prestige, and land use accessibility. For example, transport planners may favor programs to provide special mobility services because the travel impacts are easy to measure (based on number of trips provided to a particular client group), although accessibility-oriented solutions (such as creating more affordable housing in highly accessible locations, locating more public services and employment near residential areas, and improving walkability) may benefit disadvantaged populations more overall.

A fundamental barrier is that most decision-makers tend to be relatively wealthy and mobile and so have little personal experience with the problems facing mobility disadvantaged people. It may be appropriate to require all transport decision-makers to spend at least two weeks of every year without driving an automobile. This period should be chosen to include normal job and personal transport responsibilities (i.e., not during a holiday). Another way to make decision-makers more sensitive to the needs of people who are mobility disadvantaged is to incorporate citizens advisory committees and advocates into transport planning processes.

A risk is that strategies to address transport-related social exclusion using mobility-oriented solutions will exacerbate automobile dependency, increasing economic, social and environmental costs over the long-run. For example, underpricing of automobile ownership and use (for example, lower fuel taxes and free roads and parking), and increased transit services to lower-density suburban areas, justified as ways to improve mobility for non-drivers may stimulate more automobile dependent land use patterns that ultimately make non-drivers worse off.

A barrier to more accessible transport is that many people believe motor vehicle travel and the automobile industry are particularly important for economic development. Although this assumption is probably untrue, it is still a barrier to reduced automobile dependency (“TDM and Economic Development,” VTPI, 2003).

Current transport planning practices tend to be biased in several ways that favor automobile-oriented solutions and undervalue alternative modes and more accessible land use patterns. Table 7 lists various ways that conventional planning practices tend to encourage automobile dependency.

Table 7 Comparing Conventional and Comprehensive Planning (VTPI, 2003)

	Description	Conventional	Comprehensive
Selection of Options	Range of solutions considered.	Often ignores TDM options	Includes TDM options
Investment Practices	How funding is allocated, and the flexibility with which it can be used for the best overall option.	Favors large investments	Applies least-cost planning
Market Distortions	Degree to which market distortions such as underpricing result in excessive travel demand.	Ignored	Considered
Modeling Practices	Whether transport modeling uses current best practices to predict travel and economic impacts.	Limited analysis capability	More comprehensive
Measuring Transportation	Methods and perspectives used to measure travel (vehicle traffic, mobility or accessibility)	Measures vehicle traffic	Measures accessibility
Uncoordinated Decisions	Whether transport and land use decisions are coordinated to support strategic regional objectives.	Not considered a problem	Considered a problem
Generated Traffic	Whether planning takes into account the full impacts of generated traffic and induced travel.	Ignores many components	Includes all components
Downstream Congestion	Additional congestion on surface streets that results from increased highway capacity.	Ignores for individual projects	Includes
Consumer Impacts	Techniques used to evaluate the consumer impacts of changes in the transport system.	Travel time changes	Consumer surplus analysis
Vehicle Costs	Which vehicle costs are considered.	Only short-term operating costs	All affected vehicle costs
Parking Costs	Parking costs, including costs borne by motorists, businesses and governments.	Only if paid by motorist	Includes
Construction Impacts	Whether increased congestion delays during construction periods are considered in evaluation.	Ignores	Includes
Nonmotorized Travel Impacts	Accessibility, convenience, safety, comfort and cost off walking and cycling.	Ignores	Includes
Transportation Diversity	Quantity and quality of travel options (particularly those used by non-drivers) are considered.	Limited analysis	Comprehensive analysis
Environmental Impacts	Impacts on air, noise and water pollution; greenspace preservation and community livability.	Limited analysis	Comprehensive analysis
Impacts on Land Use	The degree to which each option supports or contradicts strategic land use objectives.	Ignores	Includes
Equity Impacts	The degree to which each option supports or contradicts community equity objectives.	Limited analysis	Comprehensive analysis
Safety and Health Impacts	How safety and health risks are measured.	Per vehicle-mile crash risks	Per-capita health risks

This table summarizes differences between conventional and comprehensive transport evaluation. From the “Comprehensive Transport Planning” chapter of VTPI, 2003.

Research Needs

Several lines of research can better help evaluate transport-related social exclusion and potential solutions.

First, we need a standard definition of *accessibility* that can be used by various disciplines (transport modelers and planners, social scientists, social workers, etc.) and practical ways to incorporate it in planning. This will require a better understanding how land use factors and the quality of various travel modes affect accessibility for various groups.

We need a better understanding of how transport and land use policies affect accessibility, for example, how current zoning codes and infrastructure investment practices may create more automobile dependent land use patterns, and how policy and planning reforms might help create more accessible and multi-modal communities that better serve non-drivers and low-income residents.

We need a standard definition of *basic accessibility* and *basic mobility*, which identify “essential” activities and ranks trips according to their importance to a community. This can help identify which basic accessibility needs are currently not being met for various demographic and geographic groups.

Canada needs to develop better personal transport data, including standardized travel data and more qualitative user surveys to identify the accessibility problems they face and their preferences in terms of possible solutions.

Planners need better information on the full range of possible solutions to transport-related social exclusion problems, including those that involve transport and land use policy reforms, in addition to special mobility services and programs.

Planners need more comprehensive tools for evaluating the full impacts of transport policies and projects, including indirect, long-term and difficult-to-quantify impacts. Transport planners need better techniques for incorporating social and environmental benefits and costs into evaluation, and better public involvement techniques so that decisions better reflect a communities values and needs.

Examples and Case Studies

Examples of some innovative Canadian transport programs for improving social inclusion are described below.

The Accessible Transportation Portal

The Accessible Transportation Portal website (www.accesstotravel.gc.ca), sponsored by Transport Canada and a variety of government and private partners, provides information on accessible transportation and travel across Canada.

Community Transportation Action Program

The Community Transportation Action Program (CTAP) was launched in August 1996 as a joint venture of five Ontario ministries: Transportation, Education and Training, Citizenship, Culture and Recreation, Community and Social Services, and Health. CTAP's mandate was to provide transitional support to communities interested in restructuring and coordinating their local transportation services. CTAP supported the development of innovative, local transport services.

In the past, exclusive relationships existed between users and providers of transport. For example, school boards would typically contract school bus operators to provide transportation; municipalities would provide or contract public transit services; social service agencies would use volunteers and/or agency vans; and health facilities would primarily use ambulances. Improved coordination of transportation resources can result in less duplication, less inefficiency and fewer gaps in service. It also breaks down barriers between client groups, thus providing a wider range of vehicles to meet users' needs in a more flexible and cost-effective manner.

For example, in some communities, rather than sitting idle, school buses are being used between morning and afternoon student runs to transport seniors and persons with disabilities. In a remote northern Ontario community, the Board of Education has contracted with the local Meals on Wheels to transport disabled students to school in its van. This provides an economical solution for the school board and helps to offset the cost of the van for Meals on Wheels.

City of Rimouski's Taxibus (www.movingtheeconomy.ca)

The City of Rimouski, Quebec (population 32,000) has found that taxies can provide a viable and cost-effective alternative to traditional bus transit systems. After studying various transit service scenarios using buses, Rimouski chose to launch its TAXIBUS service. TAXIBUS, established in 1993, is a demand-responsive service which relies solely on local taxicabs. Quebec's Ministry of Transport developed a software to help manage the service.

TAXIBUS operates Monday to Friday, serving 300 stops by predetermined schedules. Passengers, who pay \$2.40 per ride or \$70.55 per month, must reserve one hour ahead of time by phone. The taxi drivers are paid according to the readings of the taxi meter, from the time the first passenger is picked up, to the time the last passenger is dropped off. A recent cost comparison with other transit services in Quebec cities of similar size showed that costs associated with TAXIBUS are an average of CAN\$12 less per capita.

Taxies can provide a variety of transport services. These include: carrying people to a transfer location such as a bus terminal or railway station (called "treintaxi" in the Netherlands); replacing buses between rush hours; extending the service schedule of regular public transit; providing service to scarcely populated areas; acting as a complementary service for transportation of people with disabilities; and transporting groups previously organized by a third party.

Taxibus: Home Pickup At A Reasonable Cost

Sarah Dougherty, *Montreal Gazette* October 6, 2001

Jacques Gregoire doesn't drive and, at 64, he doesn't want to start. Living on the outskirts of Victoriaville, Gregoire long relied on a friend with a car to get around. When that friend passed away recently, Gregoire was stuck. But Gregoire is out and about again, getting errands done and staying in contact with friends, thanks to a taxi service that doubles as public transport. Known as TaxiBus, the service groups together passengers throughout the city, picking them up and delivering them at more than 434 stops, using cars and drivers belonging to a local taxi company.

Inspired by a model set up in Rimouski seven years ago, taxi-bus services are catching on in Quebec cities that are too small to support a full-fledged public transportation network. The subsidized service is an affordable alternative that has allowed many in smaller centres to cut down on the use of a car for work, school and shopping, or do without a car altogether.

And unlike the former bus service in Victoriaville, run by a private company that eventually went out of business, TaxiBus routes are not restricted to main arteries. Gregoire said he never used the bus because the nearest stop was too far away. TaxiBus cars go right to the door of important city facilities such as the hospital, CeGEP, libraries, arenas and shopping centres, and right around the corner from major employers.

TaxiBus Inc. was incorporated by Victoriaville's city council to oversee the service. It signed a contract with the sole taxi company in town, Taxi Veterans, which put its 25 owner-drivers and their cars at the disposal of TaxiBus. An extra five drivers were hired. Taxi Veterans, in turn, formed a company to run the dispatch operations. The tricky task of coordinating the doubling up of passengers is made easier by a software developed by the Quebec Ministry of Transport for organizing transportation for the handicapped, which was adapted for taxi-bus services. Emeric Bergeron, president of Taxi Veterans in Victoriaville, says that although the company must occasionally delay service to its regular taxi clientele to take TaxiBus customers, his drivers like the arrangement. "Because of the large number of passengers, drivers can work fewer hours and make the same amount of money as before," Bergeron said.

Passengers must buy an annual \$5 membership card. In the first year of operation, Victoriaville has sold just over 3,000. And instead of paying \$2.50 for each trip, users can buy an unlimited monthly pass for \$70. Children under 5 accompanied by an adult ride free.

TaxiBus riders must reserve at least one hour in advance. Cars are not equipped to handle wheelchairs; that service is offered through a separate company. If TaxiBus in Victoriaville has had relatively few wrinkles to iron out in its first year of operation, it might be thanks to the groundbreaking work done by Rimouski, the first city in Quebec to have taxi-buses.

The city settled on a taxi-bus service, which started in 1991. In 2000, 42 taxis made 22,000 trips and carried close to 63,000 passengers. A service also now connects with neighbouring towns. Passenger revenues paid for 45 per cent of the total cost of \$337,894 in 2000. Provincial subsidies covered 21 per cent of the expenses, with the city of Rimouski picking up 31 per cent, or \$103,148. Sponsorships made up the balance.

Michael Roschlau, president of the Canadian Urban Transit Association said taxi-bus systems are ideal for smaller cities with low-density populated areas. He said municipalities in Ontario and western Canada use variations on this model, often to supplement fixed-route bus systems.

Austin Transportation User Fee

(www.ci.austin.tx.us/development/lcd1.htm)

The City of Austin, Texas has an innovative way of financing transportation infrastructure which rewards households that reduce their vehicle ownership. City utility bills include a “Transportation User Fee” (TUF) which averages \$30 to \$40 (US) annually for a typical household. This charge is based on the average number of daily motor vehicle trips made per property, reflecting its size and use. For example, single-family development is estimated to generate 40 motor vehicle trips per acre per day, condominium residential use and townhouse residential use generate approximately 60 motor vehicle trips per acre per day, and offices generate approximately 180 motor vehicle trips per acre per day. The city provides exemptions to residential properties with occupants that do not own or regularly use a private motor vehicle for transportation, or if the user is 65 years of age or older.

Lancaster, CA Development Fees

(www.newrules.org/environment/lancaster.html)

In 1993, the city of Lancaster developed an innovative model for assessing impact fees on new development. Known as the Urban Structure Program, the model includes a surcharge levied on new development beyond the central core (5 mile radius).

The further out from the central core, the higher the surcharge. A typical new house located within the core, for example, would incur an impact fee of \$5,500. The same house located one mile beyond the core would incur a fee of \$10,800. The model relies on a computer program, updated annually, that calculates the cost of providing city services for a particular development.

One goal of the model is to ensure that outlying developments pay their true public costs. Many city services are more expensive to provide in low-density developments located far from existing service areas. Often residents of the urban core must shoulder a portion of these added costs. Lancaster's model requires these outlying developments to pay their full costs.

The result is a system that discourages sprawl, promotes a more cohesive and orderly development pattern, and supports downtown businesses. Since the model was implemented in 1993, no new development has occurred outside the central core.

Portland Housing Policy Results in Mixed Income Neighborhoods

Bucking national trends, Portland and its suburbs became more economically integrated during the 1990s, new census figures show.

The Oregonian, 05/15/02 (www.oregonlive.com/news/oregonian)

Poor families are less concentrated in the city of Portland and more likely to live in the suburbs -- nearly all the suburbs -- than a decade ago. Upper-income, middle-income and working-class people remain more likely to live near each other than in separate enclaves.

The residential mingling of haves and have-nots can be traced to a state land-use rule put in place nearly a quarter-century ago, local developers and planners say. Called the metropolitan housing rule, it required every suburban city and county to zone for a lot of apartments. When those apartments went up fast in the 1990s, it enabled moderate- and low-income people to live practically all over, not only in Portland or the most bedraggled suburbs. That sets Portland apart from most metropolitan areas, says Myron Orfield, author of “American Metropolitica: The New Suburban Reality.”

References and Resources

BLS, *2000 Consumer Expenditure Survey*, Bureau of Labor Statistics (www.bls.gov), 2001.

BTS, *Mobility and Access; Transportation Statistics Annual Report 1997*, Bureau of Transportation Statistics (Washington DC; www.bts.gov), pp. 173-192.

Community Impact Assessment Website (www.ciatrans.net) provides information for considering impacts on human environments in transportation planning.

Coordination Council for Access and Mobility (www.ccamweb.org) is supported by the US Department of Transportation and the Department of Health and Human Services works to increase the cost-effectiveness of resources used for human service transportation.

FHWA, *Environmental Justice Website* (www.fhwa.dot.gov/environment/ej2.htm) provides reports, publications, and links to other websites concerning environmental justice, community impact assessment, public involvement in transportation planning.

David Forkenbrock and Lisa Schweitzer, *Environmental Justice and Transportation Investment Policy*, Public Policy Center, University of Iowa (www.uiowa.edu), 1997.

David J. Forkenbrock and Glen E. Weisbrod, *Guidebook for Assessing the Social and Economic Effects of Transportation Projects*, NCHRP Report 456, Transportation Research Board, National Academy Press (www.trb.org), 2001.

Marcus Garnet and Michael Poulton, "Mobility, Social Behaviour and the Viability of Rural Bus Lines," *Plan Canada*, May 1994, pp. 24-28.

Todd Litman, "Evaluating Transportation Equity," *World Transport Policy & Practice* (http://ecoplan.org/wtpp/wt_index.htm), Volume 8, No. 2, Summer 2002, pp. 50-65; also available at VTPI (www.vtpi.org).

Todd Litman and David Burwell, *Issues in Sustainable Transportation*, Victoria Transport Policy Institute (www.vtpi.org), 2003.

Barbara McCann, *Driven to Spend; The Impact of Sprawl on Household Transportation Expenses*, STPP (www.transact.org), 2000.

McCormick Rankin, *Urban Transit in Canada — Taking Stock*, Transport Canada (www.tc.gc.ca/programs/environment/urbantransportation/transitstudies/urban.htm), 2002.

John Rawls, *A Theory of Justice*, Harvard University Press, 1972.

Ryan Russo, *Planning for Residential Parking: A Guide For Housing Developers and Planners*, Non-Profit Housing Association of Northern California (www.nonprofithousing.org) and the Berkeley Program on Housing and Urban Policy (<http://urbanpolicy.berkeley.edu>), 2001.

Schaeffer and Sclar, *Access for All*, Columbia University Press (New York), 1980.

Adam Smith, *An Inquiry into the Nature And Causes of the Wealth of Nations*, The Adam Smith Institute (www.adamsmith.org.uk), 1776.

Social Inclusion As A Transport Planning Issue in Canada

SC, "1996 Census: Sources Of Income, Earnings And Total Income, And Family Income," *The Daily*, Statistics Canada (www.statcan.ca/Daily/English/980512/d980512.htm), May 12, 1998.

SC, "Rural and Urban Household Expenditure Patterns for 1996," *Rural and Small Town Canada Analysis Bulletin*, Vol. 1, No. 4, Statistics Canada (www.statcan.ca), March 1999a.

SC, "How Far to the Nearest Physician?," *Rural and Small Town Canada Analysis Bulletin*, Vol. 1, No. 5, Statistics Canada (www.statcan.ca), March 1999b.

SC, "Measuring Economic Well-Being of Rural Canadians Using Income Indicators," *Rural and Small Town Canada Analysis Bulletin*, Vol. 2, No. 5, Statistics Canada (www.statcan.ca), March 2001a.

SC, *Spending Patterns In Canada, 2000*, #62-202-XIE, Statistics Canada (www.statcan.ca), 2001b.

SC, "Definitions of Rural," *Rural and Small Town Canada Analysis Bulletin*, Vol. 3, No. 3, Statistics Canada (www.statcan.ca), November 2001c.

SC, *A Profile of Disability in Canada, 2001*, Statistics Canada (www.statcan.ca), 2002.

Social Exclusion Unit, *Making the Connections: Transport and Social Exclusion*, Department of the Environment, Transport and the Regions (www.socialexclusionunit.gov.uk/published.htm), May 2002.

TC, *Canadian Vehicle Survey*, Transport Canada (www.tc.gc.ca/pol/en/cvs/cvs.htm), annual report.

TC, *National Vision for Urban Transit to 2020*, Transport Canada (www.tc.gc.ca/programs/environment/urbantransportation/transitstudies/vision.htm), 2001.

Jeff Turner, *Transport and Social Exclusion Toolkit*, University of Manchester (www.art.man.ac.uk/transres/socexclu0.htm).

U.S. Department of Justice ADA Homepage (www.usdoj.gov/crt/ada/adahom1.htm) provides information on implementing the Americans with Disabilities Act.

VTPI, *Online TDM Encyclopedia*, Victoria Transport Policy Institute (www.vtppi.org), 2003.