



**The  
Centre for  
Sustainable  
Transportation**

**Le  
Centre pour  
un transport  
durable**

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## ***DEFINITION AND VISION OF SUSTAINABLE TRANSPORTATION October 2002***

### **MISSION STATEMENT**

The Mission of The Centre for Sustainable Transportation is to work proactively in achieving the sustainable transportation of persons and goods in Canada. We do this through:

- Co-operative partnerships we undertake
- Relevant and timely research
- Projects
- The communication and dissemination of balanced information
- The monitoring and supporting of sustainable transportation activities.

### **DEFINITION OF SUSTAINABLE TRANSPORTATION**

A sustainable transportation system is one that:

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

### **A VISION FOR SUSTAINABLE TRANSPORTATION IN 2035**

*Focus on access:* In a society in which transportation is sustainable, people have at least as much access to goods, services, and social opportunities as they have today, particularly people who are economically disadvantaged or who face unusual physical challenges. But the ways in which this access is achieved may be quite different.

*Non-motorized transportation:* Much more of the access depends on widespread use of non-motorized means of transport for persons, particularly in urban areas. This is possible because living and working arrangements have become much more compact. Walking, bicycling, roller-blading, and other non-motorized modes have become much more acceptable and agreeable.

*Motorized transportation by current means:* Some access depends on motorized transportation systems that are similar to those of the early 2000's but use very much less energy and pollute much less. There is more public transport, because it is encouraged by the layout and design of urban regions and because owning and using a car costs much more.

*Motorized transportation by potential means:* Some access depends on the use of quite different technologies from those in common use today. They might include fuel cells using renewable resources such as hydrogen produced with solar energy, intelligent transportation systems, automated highways, maglev rail services, and airship technologies. Together they provide cleaner, more conserving, and safer movement of people and goods.

*Movement of goods.* The movement of goods utilizes modes of transport appropriate to the size and distance of shipment and to the minimization of resulting emissions. Shippers and carriers include environmental as well as financial goals in selecting the timing and mode of shipping.

*Less need for movement of people and goods:* Whatever the mode, journeys made by motorized transport are shorter on average than in early 2000's, for the movement of both people and goods in part because urban areas are more compact and have a good mix of uses. More access is achieved through telecommunications, with less movement of people or goods.

*Little or no impact on the environment and on human health:* The net result is dramatically lower local and global impacts of transportation on the environment. The impacts are so low they no longer provide reason for concern about people's health or any part of the natural environment, in the present or the future. In particular, emissions of carbon dioxide and other greenhouse gases from transportation are less than one fifth of the total of such emissions in the 1990s.

*Methods of attaining and sustaining the vision:* As well as changes in urban areas that facilitate collective transportation, bicycling, and walking, there has been and continues to be rigorous application of the full costs of transportation, supported by appropriate incentives and also by enforcement of standards for vehicles, fuels, and infrastructure.

*Non-urban areas:* While the opportunities for achieving sustainable transportation in rural areas may be different and perhaps more limited when compared to urban areas, Canadians living in rural areas can make a positive contribution towards transportation sustainability.

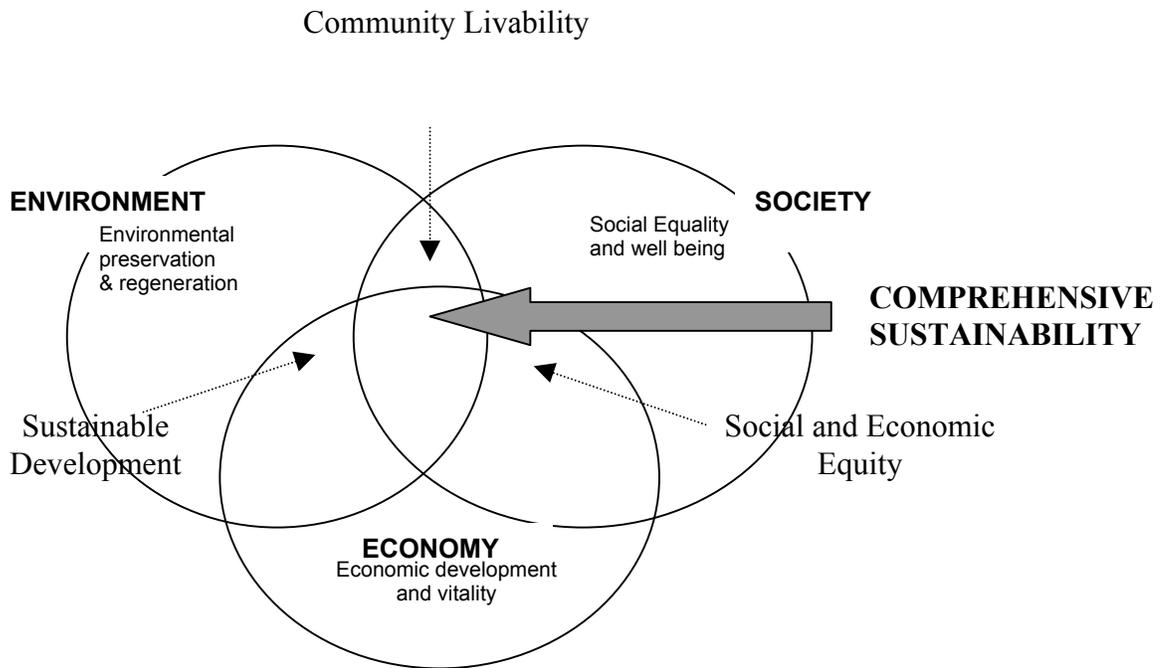
*Date of attainment:* Achieving the level of sustainability in transportation described above is believed to be achievable by about 2035. This does not preclude the possibility that much or all of transportation could be sustainable at an earlier date. In any case, setting and meeting performance milestones in the short and mid-term will be essential parts of the attainment of sustainable transportation in the longer term.

### **A sustainable world – where transportation is a key contributor**

- Sustainable transportation is an aspect of global sustainability, which involves meeting present needs without reducing the ability of future generations to meet their needs.
- Sustainability has three components: environment, society, and economy, linked as in the diagram in Figure 1.
- Environment refers to the surroundings of humans and other life forms that support them and limit their activity according to basic physical laws. Environmental factors affect present well being and determine most of the legacy we leave our descendants.
- Society is a complex of human interactions and how they are organized. Humans have evolved to be mostly dependent on their societies; thus the sustainability of societies is a necessary condition for meeting human needs.
- Societal factors are important for sustainability because they determine the present quality of life and because they can be a major component of the legacy to future generations.
- Economy describes available resources and how the resources are organized to meet human needs and goals.
- Economic factors mostly comprise means of influencing environmental and societal factors.
- Transportation of people and goods is among the means used by humans to influence societal and economic factors and to meet their needs and goals.

- Transportation can be sustainable on account of the kind of impact it has on environment and society. It can also be a means of helping to achieve sustainability in other aspects of human endeavour.

Figure 1



*Adapted from a diagram produced by the Ontario Round Table on the Environment and the Economy*

### **How can transportation become more sustainable?**

With respect to society, transportation systems should:

- a) Meet basic human needs for health, comfort, and convenience in ways that do not stress the social fabric.
- b) Allow and support development at a human scale, and provide for a reasonable choice of transport modes, types of housing and community, and living styles.
- a) Produce no more noise than is acceptable by communities.
- b) Be safe for people and their property.

With respect to the economy, transportation systems should:

- a) Provide cost-effective service and capacity.
- b) Be financially affordable in each generation.
- c) Support vibrant, sustainable economic activity.

3. With respect to the environment, transportation systems should:

- a) Make use of land in a way that has little or no impact on the integrity of ecosystems.
- b) Use sparingly energy sources that are essentially not renewable or inexhaustible.
- c) Use other resources that are renewable or inexhaustible, achieved in part through the reuse of items and the recycling of materials used in vehicles and infrastructure.
- d) Produce no more emissions and waste than can be accommodated by the planet's restorative ability.

### **Barriers to sustainability**

There are several barriers to the attainment of sustainable transportation. Four of the most important are these:

- a) More than for most other areas of human endeavour, decision-making about transportation by governments, corporations, and individuals has become locked into modes that reinforce the present unsustainable arrangements and trends.
- b) There is a mindset that achieving sustainable transportation is too costly, difficult, and will threaten our quality of life and lifestyle.
- c) Combustion of low-cost oil provides more than 99 per cent of the energy for motorized transportation and creates many of the environmental problems that result from transportation. Harnessing renewable alternatives will be a major challenge.
- d) Mechanisms for identifying improvements in sustainable transportation, and disseminating resulting success stories, and beneficial trends are inadequate.

Overcoming the institutional barriers that prevent good decision-making for transportation may be a greater challenge than overcoming the technological barriers that stand in the way of reducing the use of fossil fuels.

### **About The Centre for Sustainable Transportation**

The Centre was formed to help overcome the barriers to the attainment of sustainable transportation, in Canada and elsewhere, through the provision of well-reasoned and balanced information and analysis.

This definition and vision has been developed by the Centre's Board of Directors to be a foundation and framework for the Centre's work. The definition and vision will be modified as better understanding is gained about the requirements for sustainability and about the options available for transportation.