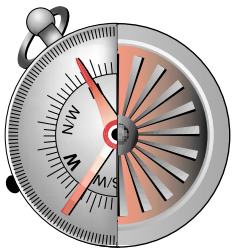
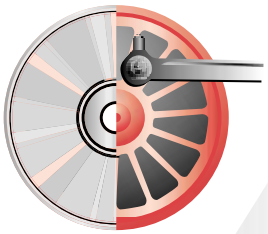
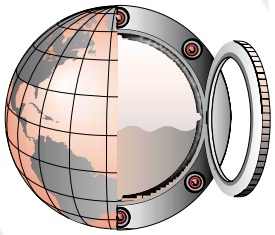
Transport Canada Transports Canada

TP 13123

SUSTAINABLE DEVELOPMENT STRATEGY 2001-2003







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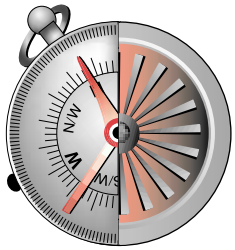
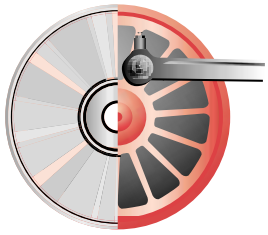
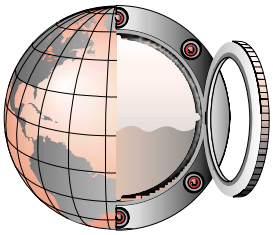
Minister's Message







The history of transportation in Canada is a story of innovation and determination overcoming sometimes great obstacles. It includes tales of early travel through the canoe routes of the First Nations peoples, the search for the North-West Passage, the development of the St. Lawrence Seaway and the driving of the last spike. Canadians are once again faced with a revolutionary challenge that will require as much imagination, will-power and commitment to move into the future. While Canadians have long recognized that a sound transportation system is critical to the well-being of our society and economy, the challenge is to balance these needs with the impact transportation can have on the environment, such as contributing to smog, climate change, congestion and urban sprawl.

As part of finding this balance, I am pleased to present *Transport Canada's Sustainable Development Strategy 2001-2003*. This is the second such strategy; the first provided a sound foundation for integrating environmental considerations into the decisions, policies and programs of the department. Over the past three years, Transport Canada has chaired the Climate Change Transportation Table, launched the Moving On Sustainable Transportation (MOST) program, conducted research, reduced waste and improved our own environmental performance. As you will see, this new strategy builds on these successes, outlining a set of seven strategic challenges and 29 concrete actions for the next three years, along with performance indicators to measure our progress.

This strategy continues the journey towards a more sustainable transportation system for all Canadians — one that will, as the World Commission on Environment and Development says, allow us to "meet the needs of the present without compromising the ability of future generations to meet their own needs." Transport Canada cannot do this alone. To develop its strategy, the department drew on the expertise of a national advisory group, consulted with the provinces, territories and municipalities, and received input from Canadians from coast to coast. The strategy represents Transport Canada's plan for making better decisions in partnership with key stakeholders in the transportation sector, and continues the journey towards a more sustainable transportation system for all Canadians.

We know that achieving sustainable transportation is a long-term vision — one that requires partnerships among all levels of government and all segments of Canadian society. By working together, we can realize this vision.

The Honourable David M. Collenette, P.C., M.P.
Minister of Transport

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Executive Summary

Sustainable Development and Transport Canada

Transportation is essential to Canada's economic and social fabric, bringing people and goods together across our large country. No sector of the economy could function without an effective transportation system. Transportation, however, also impacts on the quality of our air, water and land. Canadians expect a safe and efficient transportation system, but they also want a clean environment. Balancing these economic and social needs with the need to protect the environment is at the heart of the concept of sustainable development.

Transport Canada and other federal departments tabled their first sustainable development strategies in Parliament in December 1997. In this, its second strategy, Transport Canada reports on its progress in implementing its 1997 strategy, and identifies how it will build on the accomplishments and lessons learned from its first strategy.

Transport Canada's *Sustainable Development Strategy 2001-2003* defines what this department can do to better integrate environmental considerations into its mandate. Transport Canada's strategy begins with a set of sustainable development principles that define how the department interprets the concept of sustainable development in relation to the transportation sector. It also identifies seven priority challenges and 29 specific commitments for action. By adopting these principles and implementing these actions, the department will foster a more sustainable transportation system, one that is sustainable on all three counts — economic, environmental and social.

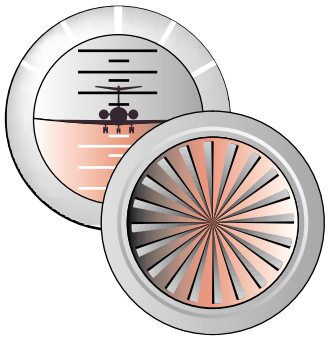
The Challenge of Sustainable Transportation

The goal of sustainable transportation is a significant challenge for all nations. Transportation remains vitally important to Canada's social and economic well-being. However, as Canada's economy and population grow, so too does the demand for transportation.

The number of vehicles on the road continues to grow every year as Canadians drive more and more for work, social and recreational purposes. With an expanding economy and greater trade, and a growing reliance on internet shipments and "just-in-time" delivery, Canada is shipping more and more goods — particularly by truck and air, both of which are forecast to double by 2020.

The effects of this growth in transportation are felt by all Canadians. Increasing congestion, and, as a result, lost productivity, is particularly evident in urban areas. Governments are facing growing pressures to finance and expand transportation infrastructure to meet this growing demand. Environmental pressures are mounting, including the greater use of non-renewable energy, increased air pollution and smog, water pollution from spills and leaks, and loss of natural habitats.

While some of the issues and impacts are easily identified, the solutions are not. Emerging technologies, such as fuel cells for automobiles, will play an important role in reducing the environmental impacts of transportation. However, technology alone will not



provide all of the solutions. Our transportation infrastructure must evolve to promote less polluting modes of travel and better integrate different modes to make the system more efficient. Changes in the way Canadians live and travel will also be needed — such as more compact cities, greater use of transit, and fewer car trips each day. Many nations are trying innovative and new approaches to encourage these changes — such as information technology, better rail and transit systems, demand management programs and economic instruments like user fees or charges. Moving to sustainable transportation is not a short-term journey. It will require a long-term commitment and coordinated effort by government, industry and consumers.

Working together

Given the nature of sustainable transportation issues and its shared jurisdiction, strong and effective partnerships are required with other orders of government, stakeholders and individual Canadians. Consultations on this strategy were held in June 2000 in eight cites across Canada, to involve industry, transportation and environmental organizations, the general public, academia, health and labour groups, and other orders of government. Transport Canada also relied on its National Advisory Group, a group of transportation and environmental experts assembled to advise the department on the development of the strategy. The opinions shared by all participants with the department were instrumental in shaping the *Sustainable Development Strategy 2001-2003*. Appendix A provides the results of the consultation sessions and the full list of participants.

Strategic Challenges for Transport Canada

Transport Canada has structured its 2001-2003 strategy around seven strategic challenges, which define areas critical to sustainable transportation. The strategy identifies 29 actions to be accomplished where the department can make an important difference within its mandate. The seven challenges are:

1. Improving education and awareness of sustainable transportation
2. Developing tools for better decisions
3. Promoting adoption of sustainable transportation technology
4. Improving environmental management for Transport Canada operations and lands
5. Reducing air emissions
6. Reducing pollution of water
7. Promoting efficient transportation

The fold-out chart and Appendix B provide additional details on what the department will do and how it will measure its progress.

Introduction

PART 1

The transportation system is vital to the lives of Canadians and to the Canadian economy — we all rely on transport to move the goods we need, get to work, take a holiday and connect with our families and friends. But by its very nature, the transportation system has a variety of environmental impacts on our air, land and water, and on our health. Continued growth in automobile use, as well as in trucking and aviation, has for example resulted in more emissions of harmful substances and smog, translating into a greater negative impact on human health and the environment.

More and more, Canadians are relying on the transportation system to perform its vital role in ways that do not harm human health or the environment. With increasing evidence of climate change and the health effects of air pollutants, the importance of reducing these impacts is growing. Sustainable development is a concept which promotes a balance of the economic and social benefits of transportation with the need to protect the environment.

In its 1987 report, *Our Common Future* (also called the Brundtland Report), the World Commission on Environment and Development defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The Government of Canada has adopted this definition, and in 1995 passed amendments to the *Auditor General Act* requiring federal departments to prepare sustainable development strategies for tabling in Parliament by the end of 1997, and to update them every three years thereafter.

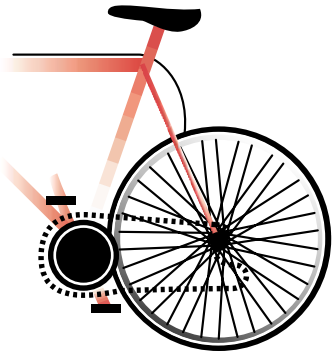
Charting a course for the future

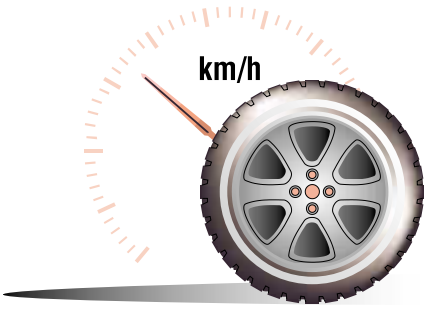
Transport Canada recognizes that sustainable development is a long-term goal, requiring the cooperation of many partners and individual Canadians in the search for effective solutions. Transport Canada's *Sustainable Development Strategy 2001-2003* builds on its initial strategy and charts the department's course of action for the next three years.

The *Sustainable Development Strategy 2001-2003* has at its core seven strategic challenges facing transportation. For each challenge, the department has defined specific commitments for action — 29 in total — along with specific targets and performance indicators (see Action Plan 2001-2003 insert). In formulating these commitments, the department's approach has been to focus on areas where it can make a real difference.

Achieving the best possible transportation system

Transport Canada's vision is to achieve the best possible transportation for Canada and Canadians. This means ensuring that Canada has a sustainable transportation system that is safe, efficient and environmentally responsible.





Transport Canada is committed to working with Canadians to ensure that they enjoy a safe, efficient and environmentally responsible transportation system. Traditionally, the department has focused on ensuring that Canada's transportation system is both safe and efficient (i.e. social and economic considerations). Because of this past focus, this strategy focuses in large part on the environmental aspects of transportation, and how to better integrate environmental concerns with the department's existing safety and economic roles. That said, the department intends to more fully address the social and economic aspects of transportation in future strategies.

Making Canada's transportation system more sustainable requires a long-term commitment and coordinated effort by all levels of government, industry and, most importantly, by individual Canadians. It is not a goal that can be met overnight, nor can it be achieved by Transport Canada acting alone.

Although this strategy represents an important step, Transport Canada recognizes that significant challenges lay ahead in adapting new technologies, improving transportation infrastructure, and influencing the transportation choices of Canadians.

Transport Canada's Role

PART 2

Keeping up with the challenge of change

Since it was formed as a federal department in 1936, Transport Canada has evolved significantly to meet the changing needs of Canadians. Generally, the department is moving away from its role of operator of the transportation system toward that of regulator and policy maker.

Safety remains the department's number one concern. Transport Canada regulates and inspects aviation, railways, shipping and road vehicles to ensure that people, as well as goods and services, are transported as safely as possible.

Transport Canada also has the authority to regulate for certain environmental purposes. The department regulates pollution from planes, ships and railways, for example. It also regulates water pollution from ships, through the *Canada Shipping Act* and the *Arctic Waters Pollution Prevention Act*. Further, Transport Canada administers the *Transportation of Dangerous Goods Act* and operates CANUTEC, the 24-hour Canadian transportation emergency centre, to protect Canadians and the environment from the accidental release of dangerous goods. The department also works on environmental issues with other federal government departments, such as with Natural Resources Canada on the fuel efficiency of road vehicles.

Transport Canada is also responsible for international issues in transportation, such as air and marine transport, and for safety standards for new vehicles. The department oversees the national/interprovincial aspects of bus and truck transportation; provides rail passenger services through VIA Rail, a federal Crown corporation; and plays a role in monitoring and analyzing economic data to assess the competitiveness and efficiency of transportation services.

Transport Canada undertakes research to improve transportation, concentrating on areas that advance safety, security, accessibility and environmental protection. To improve the transportation system as a whole, the department also assists the provinces and territories with funding for transportation infrastructure, such as highway construction and specialty investments in airport and port infrastructure. These investments help to improve the efficiency of the transportation system.

Transport Canada participates in domestic and international fora on sustainable transportation. Upcoming events include:

- the North American Commission for Environmental Cooperation's (CEC) workshop on the environmental impacts of trade and transportation corridors, in spring 2001;
- the ninth meeting of the United Nations Commission on Sustainable Development (UNCSD), where transportation is a key theme, in spring 2001; and
- "Rio + 10", the tenth anniversary of the 1992 Earth Summit, in 2002.

Transport Canada also participates in the Organisation for Economic Co-operation and Development (OECD), to develop policies and programs that encourage sustainable transportation systems, particularly as they relate to North American systems.

With the amendment of the *Railway Safety Act* which came into force on June 1, 1999, Transport Canada now has the authority to regulate the release of pollutants into the environment from the operation of railway equipment, with the intent to contribute to the environmental sustainability of the rail transportation industry.

In recent years, the department has worked to make Canada's transportation system more competitive and efficient by reducing government intervention and harmonizing regulations. To give users more say in how parts of the transportation system are managed, Transport Canada has divested many of its ports and airports to local organizations. As a result of this fundamental change, Transport Canada's role has changed from operator to that of landlord and overseer.

A shared jurisdiction

Creating a truly sustainable transportation system is a challenging task. Substantial changes in policy, including potentially controversial measures among all orders of government, may ultimately be called for to encourage the technological and behavioural changes required. Strong and effective partnerships are therefore critical, particularly with other federal departments and with provincial, territorial and municipal governments.

Transport Canada works with other federal departments on environmental issues in transportation. For example, it works with Fisheries and Oceans Canada in preventing, detecting and responding to marine pollution incidents, through a national marine spill preparedness and response system, and with Natural Resources Canada to promote energy efficiency in the transport sector. With the recent passing of the *Canadian Environmental Protection Act* (CEPA), Environment Canada has taken over from Transport Canada the authority to regulate motor vehicle emissions, as well as on- and off-road engines and fuels.

The provinces and territories are responsible for most aspects of highways, vehicle licensing and inspection. Municipal governments look after urban planning and local transportation systems, including urban roads, bridges and public transit. Consequently, Transport Canada must work jointly with other governments on initiatives to improve Canada's transportation system. To this end, federal, provincial and territorial Ministers of Transport meet each year to discuss and collaborate on a variety of common interests, such as cooperative agreements for highway funding and trucking safety, and on important environmental issues, such as climate change.

Transport Canada's mandate of ensuring the best possible transportation system for Canadians requires that the department take a leadership role in working with the provinces, territories and municipalities to meet both national and regional goals for a sustainable transportation system.

Sustainable Development and Transport Canada

PART 3

Sustainability... treating the world as if we intended to stay.

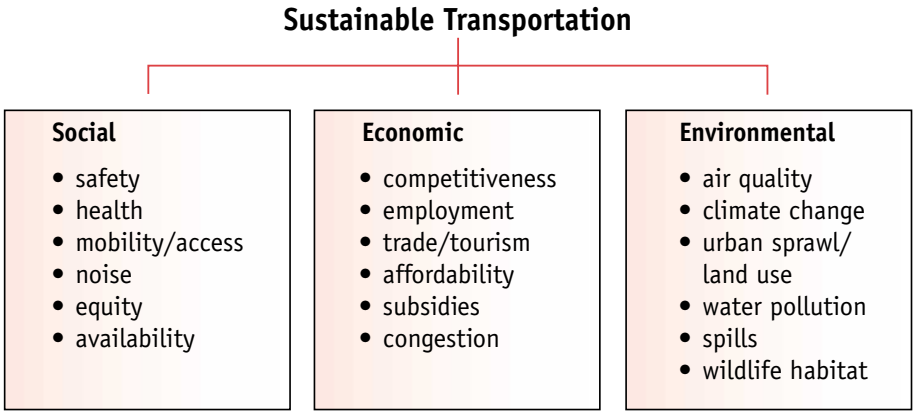
Gray, 1996

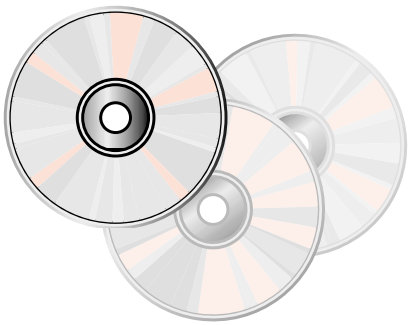
Applying the concept of sustainable development to transportation is what Transport Canada's sustainable development strategy is all about. Although there is no single, commonly held definition of sustainable transportation, for the department the concept means that the transportation system, and transportation activity in general, must be sustainable on three counts — economic, environmental and social (Figure 3.1). Practically, this means ensuring that decisions are no longer made with the environment as an afterthought. Appendix C lists some of the existing definitions of sustainable transportation.

Sustainable development principles for Transport Canada

Transport Canada has adopted a set of principles that recognize sustainable development as among the highest of departmental priorities, and define how the department will apply the concept of sustainable development to the transportation sector. Transport Canada is committed to applying these principles to its policies, programs and operations so that decisions will better reflect the goal of sustainable transportation.

Figure 3.1
Sustainable Development and Transportation





Social Principles

Safety and Health: Transportation systems should first be designed and operated in a way that protects the safety of all people. In addition to Transport Canada's commitment to prevent accidents, the department will strive to reduce the negative health impacts of transportation.

Access and Choice: Transportation systems should provide people with reasonable access to other people, places, goods and services. The department will promote a more diverse transportation system, including access to innovative alternatives (i.e. information technologies).

Quality of Life: Transportation is a key ingredient in the quality of life of Canadians. The department recognizes that transportation policies have a direct effect on people and that it must consider the characteristics of different communities and regions across the country.

Economic Principles

Efficiency: Transport Canada will use policies, programs and innovative approaches to support the productivity and competitiveness of Canada's transportation system and its contribution to the national economy. The department will explore ways of promoting efficient travel behaviour and sustainable transportation options.

Cost Internalization: The department recognizes the merit of "full cost pricing," whereby the costs of transportation reflect, to the extent possible, their full economic, social and environmental impacts. The department will assess barriers to sustainable transportation practices to better understand the full impact of its decisions.

Affordability: Transportation systems should be affordable. The department will promote sustained strategic investment in transportation through new partnerships, innovative financing and a clear identification of priorities. In seeking cost-effective solutions, it will promote options that include demand management and that foster an appropriate mix of modal alternatives.

Environmental Principles

Pollution Prevention: Transport Canada will work to ensure that transportation needs are met in a way that avoids or minimizes the creation of pollutants and waste, and that reduces the overall risk to human health and the environment.

Protection and Conservation: The department will apply sound environmental protection and conservation practices. It will support transportation systems that make efficient use of land and natural resources, preserve vital habitats and maintain biodiversity.

Environmental Stewardship: The department will continually refine its environmental management system so that its internal operations support sustainable development. As both custodian and landlord, it will consider the potential environmental impacts of new initiatives, and will apply risk management and due diligence practices consistently to its real property assets.

Management Principles

Leadership and Integration: Transport Canada recognizes sustainable development as among the highest of departmental priorities and accepts its responsibility to become a leader in sustainable transportation. The department will set priorities and responsibilities, allocate resources, and apply tools to integrate sustainable development into its policies, programs and operations.

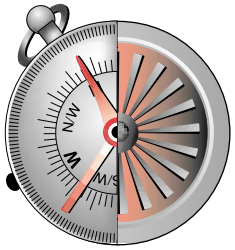
Precautionary Principle: Where there are threats of serious or irreversible damage to the environment, the department will not use a lack of full scientific certainty as a reason for postponing cost-effective measures to prevent environmental degradation.

Consultation and Public Participation: The department will inform and engage employees, stakeholders and communities in its decision-making process as appropriate, and encourage them to participate in achieving the goal of sustainable transportation.

Accountability: The department will annually measure and report its progress in achieving its sustainable development objectives and targets. To this end, it will develop and refine sustainable transportation indicators.

Key Issues in Transportation

PART 4



In a country as vast as Canada, the transportation sector has an impact on every aspect of life and business. Transportation contributes to the social fabric of Canada and directly affects Canadians' quality of life. It is also fundamental to the Canadian economy indeed, it is an important economic sector in itself. Canada has a well-developed transportation system that represents a large investment in infrastructure, vehicles and fuel distribution networks. Table 4.1 gives an idea of the extent of Canada's transportation system.

Transportation is a major employer. In 1999, over 800,000 Canadians worked full-time in the sector, accounting for about 7 per cent of total employment. Transportation also contributes significantly to Canada's economic output. In 1999, transportation demand accounted for roughly 13 per cent of the country's Gross Domestic Product.[1]

Transportation is especially important given Canada's large size and dependence on international trade. For example, with the signing of the North American Free Trade Agreement (NAFTA), trade between Canada and the United States has grown considerably, with the two countries exchanging nearly $1.5 billion per day in goods and services relying in large part on our transportation sector.[2]

Transportation also contributes to the Canadian economy through its essential role in the tourism industry. In 1998, tourism spending reached $47.1 billion, 70 per cent of which was spent by Canadians themselves and 30 per cent by visitors. Transportation accounted for $18.5 billion, or 39 per cent of all tourism expenditures. Air travel accounted for 57 per cent of this, followed by road travel at 35 per cent, with the balance going to rail, bus, taxis and other modes.[3]

Table 4.1
Canada's Transportation Infrastructure

- 1,800 aerodromes/airports
- 28,000 aircraft
- 3,260 rail locomotives, 112,000 freight cars and 430 passenger cars
- 50,000 route-kilometers of railway track
- 2,170 commercial marine vessels
- 300 marine ports
- 11,600 urban transit buses
- 900,000 kilometers of road
- 16,000 service stations, including:
  - 1500 propane stations
  - 975 ethanol stations
  - 200 natural gas stations
- 375,000 heavy-duty trucks
- 17 million cars and light trucks and 20 million licensed drivers

Original Source: Transportation Climate Change Table, *Options for Action*. November 1999

1 Transport Canada. *Transportation in Canada 1999: Annual Report*. 2000.

2 Department of Foreign Affairs and International Trade. *The NAFTA at Five Years: a partnership at work*. April 1999.

3 Transport Canada. *Transportation in Canada 1999: Annual Report*. 2000

Current trends in transportation

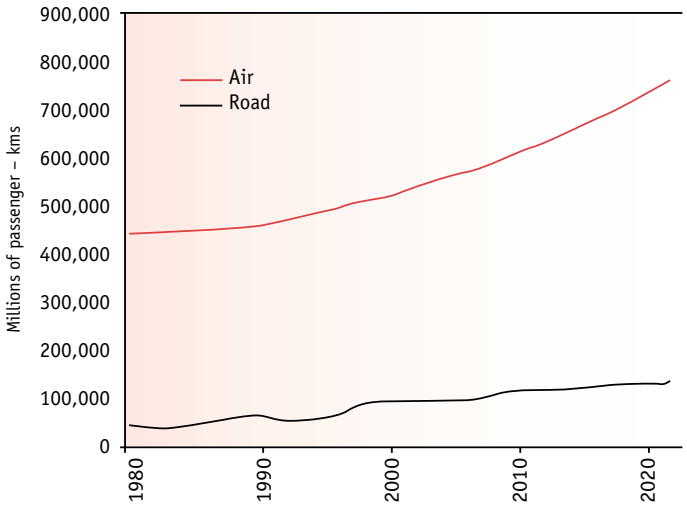
Overall, transportation activity continues to increase in Canada. As our economy and population grow, so too does the demand for transportation. Canada's economy grew at a rate of about 2.9 per cent per year between 1995 and 2000, and is forecast to grow at a rate of 2.3 per cent per year between 2000 and 2010.[4] Over the same fifteen-year period, the population of Canada is expected to increase from 29.6 to 33.8 million. This increase, along with a rise in the number of Canadians travelling, is leading to ever-increasing levels of passenger transportation activity, particularly on the road and in the air (Figure 4.1).

Due to increases in the size and use of the road vehicle fleet (the number of road vehicles in Canada), the use of on-road diesel fuel and on-road gasoline has grown by 74 per cent and 44 per cent respectively, between 1990 and 2000. At the same time, fewer Canadians are using the less polluting modes of travel, such as urban transit, trains and buses.

Similarly, growth in domestic and international trade, and changes in freight transport (such as the shift to just-in-time delivery and higher value goods) are leading to significant increases in freight transport. Overall, freight movement is expected to increase by 60 per cent between 1990 and 2020, with the greatest growth in the air and trucking sectors (Figure 4.2).

Figure 4.1

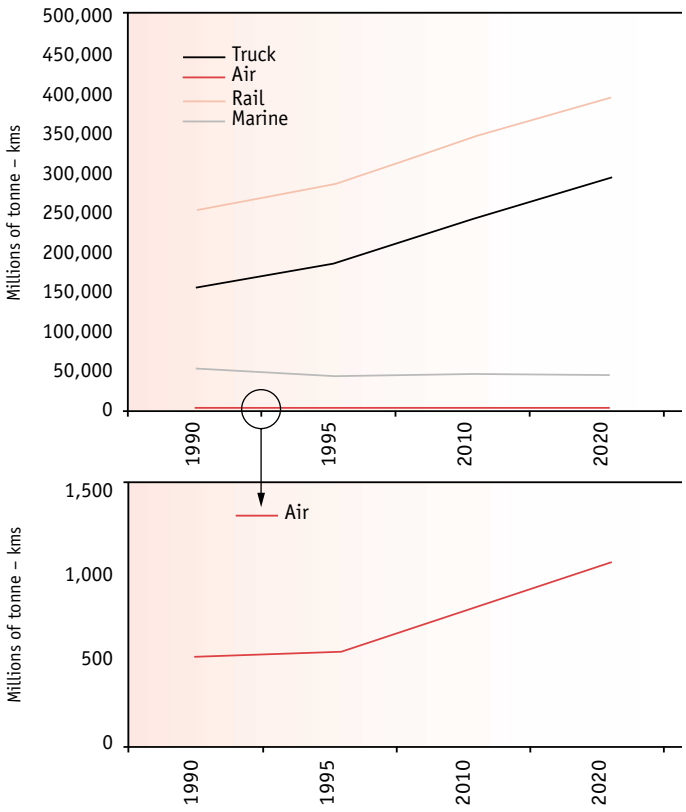
Projected Road and Air Passenger Transportation Activity



Source: Marbek Resource Consultants, *Issue Scan for Transport Canada's Sustainable Development Strategy 2000*, May 4, 2000

Figure 4.2

Projected Freight Transport Activity



Source: Delcan Corp. with AK Socio-Technical Consultants, *Assessment of Freight Forecasts and Greenhouse Gas Emissions*, June 1999

4 Natural Resources Canada. *Canada's Emissions Outlook: An Update*. December 1999

Transportation energy use is expected to rise by over 50 per cent from 1990 to 2020, with major increases in the demand for gasoline, diesel and aviation fuels (Figure 4.3). This would lead to increased reliance on oil imports, as well as oil sands and heavy oil, and to an increase in associated environmental impacts.

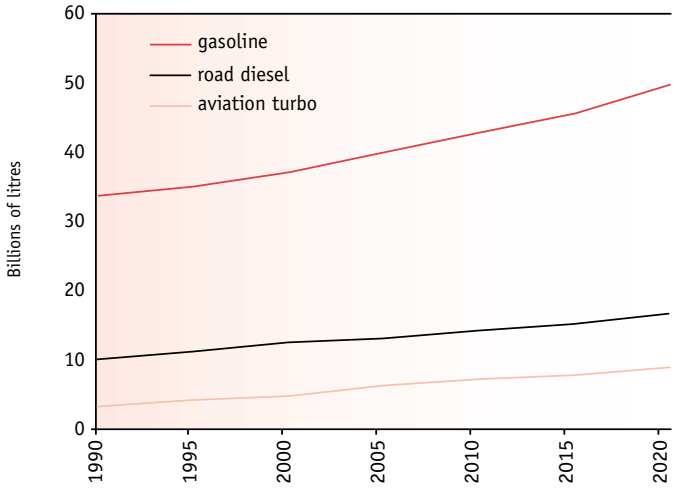
Unfortunately, the modes showing the greatest growth — private automobiles, trucking and aviation — have the greatest impact on the environment, primarily due to air emissions and land use. For example, in 1997, urban automobile use accounted for 215 grams of greenhouse gas (GHG) emissions per passenger-kilometer, and domestic aviation accounted for 150 grams. In contrast, urban transit and intercity bus travel accounted for 77 and 26 grams of GHGs per passenger-kilometer, respectively.[5]

Environmental impacts of transportation

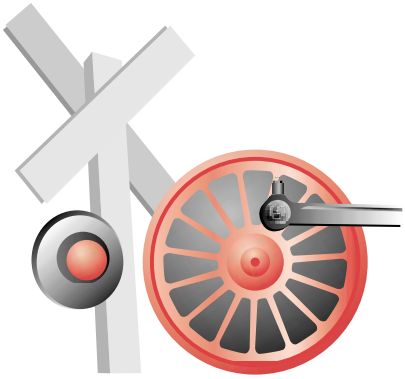
Although transportation provides many economic and social benefits, the movement of people and goods has significant environmental consequences. These include increased use of non-renewable resources (materials and energy), undesirable pollution (emissions, spills and leaks) and loss of agricultural land and wildlife habitat. These environmental impacts can generate social and economic costs, such as higher health care expenses and the costs of cleaning up pollution. Table 4.2 summarizes the stresses associated with transportation and their resulting environmental and social impacts.

Figure 4.3

Transportation Fuel Demand



Source: Natural Resources Canada, *Canada's Emissions Outlook: An Update*, December 1999



5 Transport Canada. *Transportation and Climate Change: Options for Action*, November 1999

Since Transport Canada's first sustainable development strategy, awareness of certain environmental issues related to transportation has increased among both government and the public — notably in the areas of climate change and smog. Canadians are developing a better understanding of these issues and their correlation with transportation activity.

Exhaust emissions, for instance, release nitrogen oxides (NO_X), volatile organic compounds (VOCs), carbon dioxide (CO_2) and particulate matter into the air. These emissions contribute not only to climate change and acid rain, but also to urban air pollution and smog. In 1995, transportation accounted for 52 per cent of all NO_X emissions in Canada, 40 per cent of CO_2, 20 per cent of VOCs, and 5 per cent of particulate matter — the major contributors to urban smog.

The increasing consumption of large amounts of fossil fuels depletes non-renewable natural resources and increases greenhouse gas emissions. Most scientists believe that these emissions are contributing to global climate change, which, it is predicted, will cause greater fluctuations in weather conditions and crop production patterns, and water shortages.

Transportation is the single largest contributor of greenhouse gas emissions in Canada, accounting for approximately 25 per cent of Canada's total greenhouse gas emissions in 1997 (Figures 4.4 and 4.5). Accordingly, the transportation sector will play a key role in efforts to achieve Canada's greenhouse gas emissions target under the Kyoto Protocol (6 per cent below 1990 levels, averaged from 2008 to 2012) — a target which represents just a first step in addressing climate change.

Transport Canada has pledged to phase out the production and importation of ozone-depleting substances. In 1998, the department possessed 983 pieces of equipment containing ozone-depleting substances. By 1999, it had just 453.

Table 4.2
Transportation and Associated Stresses

Stress	Contributes to
Exhaust emissions	
Nitrogen oxides, volatile organic compounds, carbon dioxide, toxics and others	Urban air pollution and smog events, climate change and acid rain, health effects
Spills and leaks	
Fuel, oil and other material leakage, spills, and solid and hazardous waste by-products	Contamination of land, surface water and groundwater, release of chlorofluorocarbon and depletion of stratospheric ozone
Energy use	
Consumption of large amounts of fossil fuel	Depletion of non-renewable natural resources
Land use	
Extensive land requirements (especially road transport), rights of way through sensitive areas	Conversion of agricultural land, disruption of habitat, congestion, and disruption of community
Other	
Accidents, noise and congestion	Human stress, injuries and fatalities

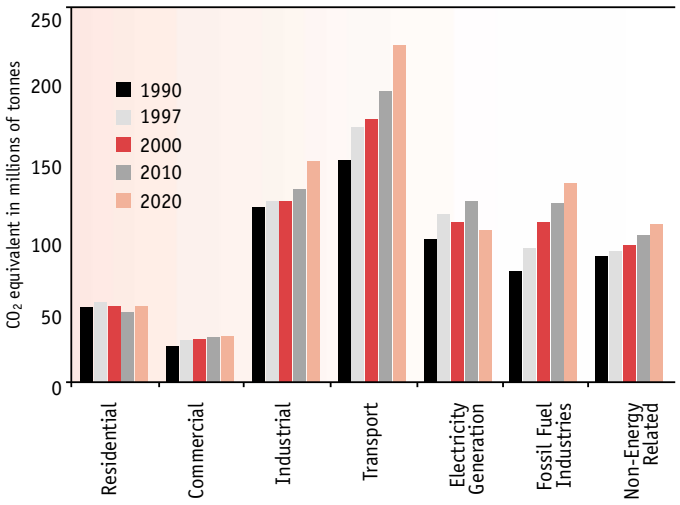
Original Source: Environment Canada, *National Environmental Indicator Series*, 1998

Land use, especially for roads and highways, and rights of way through sensitive areas, consumes or alters valuable agricultural land, green spaces and wildlife habitat. Suburban sprawl, which consumes land and creates inefficient travel patterns and congestion, is leading to increased costs and a lower quality of life for many Canadians.

In addition, spills and leaks of fuels, oils, and solid and hazardous waste by-products, can contaminate land, surface water and groundwater. They can also pollute lakes, rivers and harbours. Spills and illegal discharges of oil and oily waste by ships travelling along Canada's coast contaminate beaches and fishing areas, and result in death and sickness for a variety of wildlife, especially sea birds. The percentage of oiled birds collected on Newfoundland beaches shows the scope and variability of the problem (Figure 4.6).

Figure 4.4

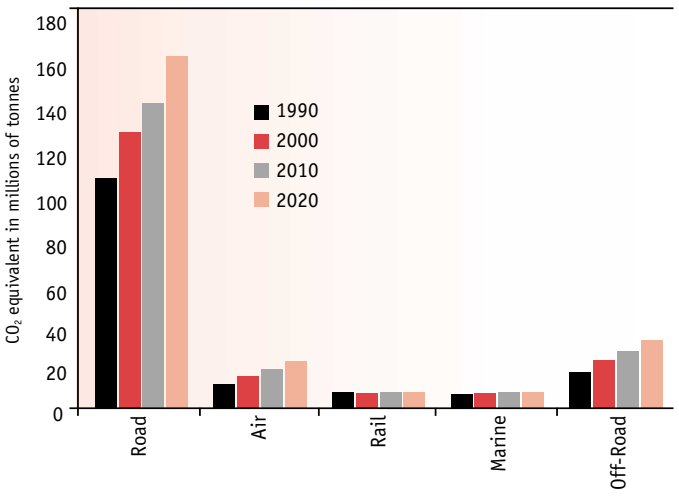
Canada's Greenhouse Gas Emissions, by Sector



Source: Transport Canada, *Transportation and Climate Change: Options for Action*, November 1999

Figure 4.5

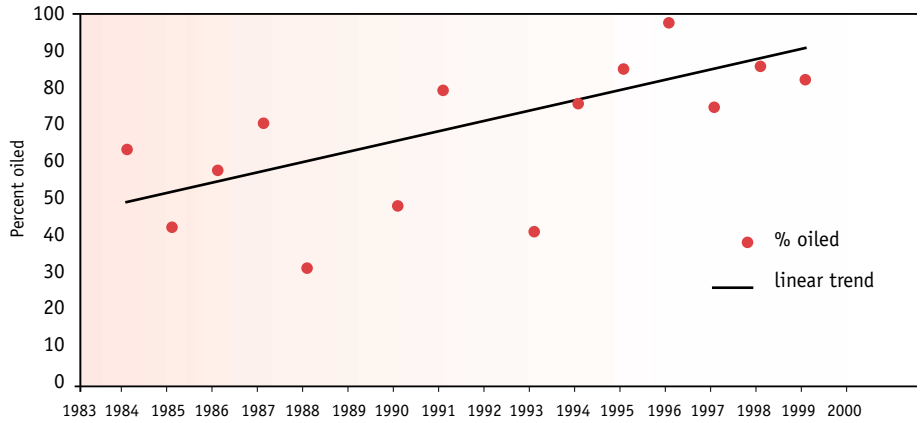
Transportation Greenhouse Gas Emissions



Source: Natural Resources Canada, *Canada's Emissions Outlook: An Update*, December 1999

Figure 4.6

Oiled Seabirds Collected on Newfoundland Beaches



Source: Wiese, F.K. and P.C. Ryan. 1999. Trends of chronic oil pollution in Southeast Newfoundland assessed through beached-bird surveys 1984-1997. Bird Trends 7: 36-40.

Transport Canada participates in the Ottawa-Carleton Commuter Challenge, an annual week-long campaign that promotes walking, cycling, transit and carpooling. In the 2000 Commuter Challenge, 43 per cent of Transport Canada's employees at headquarters participated in the event, saving 25.7 tonnes of air pollution.

Health impacts

Transportation also affects Canadians' well-being, in terms of both their safety and overall health. Motor vehicle accidents account for nearly half the accidental deaths in Canada each year, while smog contributes to a wide range of health effects, including impaired lung function, respiratory infection, asthma attacks and premature death. In 1997, there were 2,927 fatalities from motor vehicle traffic collisions.[6] A study in 2000 by Toronto Public Health estimated that each year as many as 1000 Toronto residents die prematurely and another 5500 are admitted to hospital due to air pollution in the region.[7]

In addition, the release of chlorofluorocarbons, such as from vehicle air conditioning units, is depleting the upper ozone layer. This is resulting in overexposure to ultraviolet radiation from the sun, and health concerns such as increased incidences of skin cancer and cataracts.

Making the most of opportunities

Given the significant impacts of transportation on the environment and health of Canadians, substantial steps are required to truly respond. In trying to reduce the environmental impacts of transportation, there are three broad approaches one can take:

- First, since negative impacts (particularly air emissions) are largely determined by the overall level of transportation, total transportation activity could be reduced. This would require difficult changes in Canadians' transportation habits and patterns, which could be accomplished by raising transportation costs, particularly for less sustainable modes, or by controlling infrastructure expansion, such as road construction.
- Second, the overall transportation system could be made to be more efficient. This would involve working to reduce congestion, integrating different modes of transportation, or shifting people and freight to less polluting and energy-intensive modes.
- Third, each mode of transport could be made less polluting by developing new technologies such as more fuel-efficient vehicles or cleaner fuels. It could also involve changing the way some things are done, such as reducing engine idling or increasing efforts to prevent spills and leaks.

In promoting sustainable transportation, Transport Canada recognizes the need to maintain a careful balance of social, economic and environmental objectives. This task is made more difficult by the incomplete state of information on transportation activities, the impacts and associated costs of these activities, and the costs and implications of potential policy measures. Further, Transport Canada must work in partnership with provincial/territorial and municipal governments. However, the willingness of individual Canadians to change their travel behavior will ultimately determine the extent to which the environmental impacts of transportation can be reduced.

6 Transportation Safety Board. 1998 Canadian Motor Vehicle Traffic Collision Statistic: 1998.

7 Toronto Public Health. *Air Pollution Burden of Illness of Toronto*. Toronto: City of Toronto, May 2000.

Seven Strategic Challenges

PART 5

Transport Canada has done much work in analyzing the broad issues around sustainable development and implementing the department's first sustainable development strategy over the past several years. As a result, the department has identified, with the help of stakeholder input, seven strategic challenges for sustainable transportation, and defined specific commitments for action. The 29 commitments identify work that the department is committing to do to promote sustainable development within its own mandate. They focus on areas where the department believes it can make a real difference toward achieving sustainable transportation. Figure 5.1 outlines the key issues and how they relate to the challenges and commitments.

The order in which the strategic challenges are listed below does not indicate their priority. Rather, it illustrates the necessary steps along the journey to sustainable transportation.

1. Improving education and awareness of sustainable transportation
2. Developing tools for better decisions
3. Promoting adoption of sustainable transportation technology
4. Improving environmental management for Transport Canada operations and lands
5. Reducing air emissions
6. Reducing pollution of water
7. Promoting efficient transportation

First and foremost among the challenges is the need to improve understanding of the key sustainable transportation issues and challenges, both within Transport Canada and among Canadians **(Challenge 1)**. Next, effective tools **(Challenge 2)** and new, more sustainable technologies **(Challenge 3)** are needed to enable Transport Canada and others to make more informed decisions.

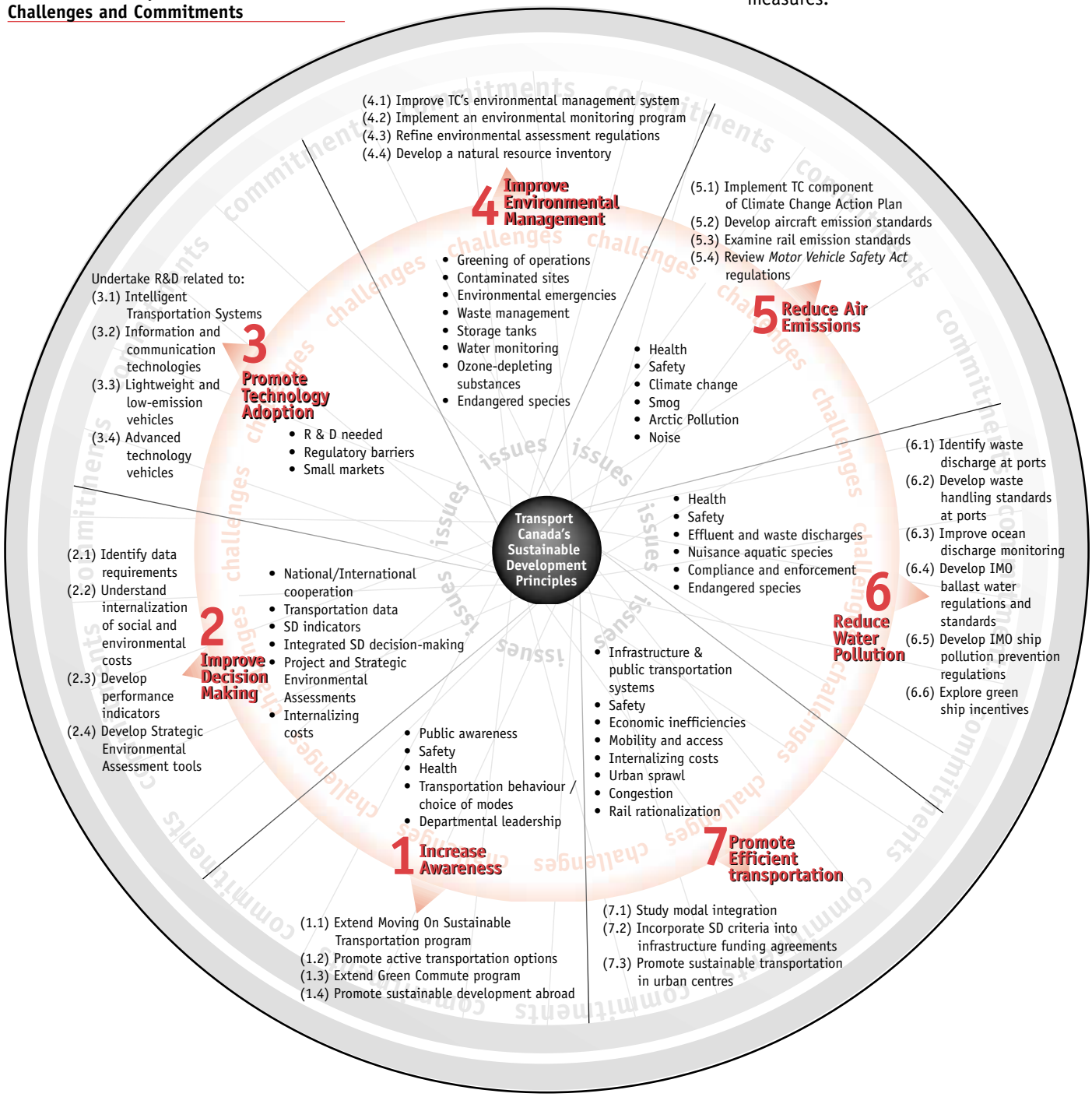
As a next step, Transport Canada needs to demonstrate leadership in improving environmental management of its own operations and on its own lands **(Challenge 4)**. The department must then work with other governments and

Canadians to reduce pollution from transportation, particularly in the areas of air emissions **(Challenge 5)** and water pollution **(Challenge 6)**. Finally, by improving the overall efficiency of the transportation system **(Challenge 7)**, negative environmental impacts can be reduced while still meeting the social and economic needs of Canadians.

This chapter provides an overview of the broad sustainable transportation challenges, as well as the commitments Transport Canada is making within its mandate in response to these challenges. An insert contained in this strategy, entitled Transport Canada's Sustainable Development Action Plan 2001-2003, details each commitment and its corresponding targets and performance measures.

Figure 5.1

Sustainable Transportation Issues, Challenges and Commitments



Improving Education and Awareness of Sustainable Transportation

CHALLENGE 1

What is the strategic challenge?

A key challenge is to make Canadians more aware of the environmental impacts of their transportation choices. Building awareness among the general public about sustainable transportation in Canada is not an easy task. It involves raising awareness about the issues themselves, as well as promoting concrete actions that individuals can take to reduce the negative impacts of transportation and improve their quality of life. Partnerships with other federal departments, provinces and territories, industry groups, and non-governmental organizations are necessary in developing and delivering consistent messages that promote sustainable transportation options.

Why is it important?

Behaviour change is the ultimate goal of improving public awareness of sustainable transportation. Individuals need to understand the impacts of their transportation behaviour in order to make choices that reduce the adverse impacts of transportation on the environment.

What's Transport Canada's role?

Transport Canada has been involved in nation-wide transportation-related awareness campaigns and programs, such as the national seatbelt campaign. Since 1997, Transport Canada has been working to build awareness of sustainable transportation through partnerships with other federal departments, other government jurisdictions, industry groups and non-governmental organizations.

Examples of what Transport Canada is doing

Transport Canada launched the Moving On Sustainable Transportation (MOST) program in 1999, to provide funding for sustainable transportation initiatives in Canada. To date, twelve projects have received an approximate total of some $400,000, including an Active and Safe Routes to School program, which encourages elementary schools to provide safer ways for students to walk and bike to school.

In addition, Transport Canada has partnered with Environment Canada and the Centre for Sustainable Transportation on a project to explore options for better integrating sustainable transportation into university curriculums. In 2000, the department also launched a Green Commute program to change the commuting habits of its own employees in the National Capital Region.

With funding from Transport Canada's Moving On Sustainable Transportation (MOST) program, the Forest Engineering Research Institute of Canada (FERIC) is conducting research that could help eliminate 20 per cent of the annual emissions associated with transportation in the forest industry (more than one million tonnes annually).

Transport Canada's Green Commute program encourages headquarter employees to commute to work by walking, cycling, carpooling or using transit. It also promotes teleworking.

What Transport Canada is committing to do

Commitment 1.1

Transport Canada will extend the Moving On Sustainable Transportation (MOST) program by two additional years to 2003/2004, and add resources to the program subject to Treasury Board approval. It will also implement a targeted marketing campaign to increase awareness of the program, by 2001/2002.

Commitment 1.2

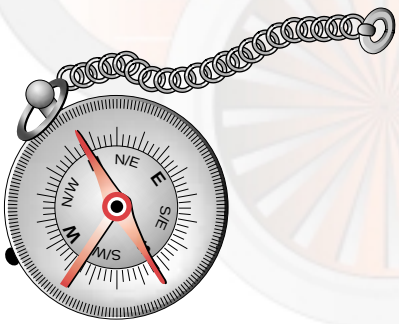
Transport Canada's Headquarters and Quebec Region, in partnership with Health Canada and Environment Canada, will develop tools for providing Canadians with information on active transportation options by 2002/2003. Examples include the development of brochures, a website, and a kiosk for sustainable development forums.

Commitment 1.3

Transport Canada will expand its Green Commute program to its regional offices, and promote adoption of the program by other federal departments across Canada. TC's Quebec, Ontario and Pacific regions will promote the program to large employers in Montreal, Toronto and Vancouver by 2003/2004.

Commitment 1.4

Transport Canada will work with the transportation sector in Canada and abroad to promote best practices for environmental management by hosting a workshop in 2001, and by working with international transportation partners to promote best practices in environmental management, by 2003/2004.



Developing Tools for Better Decisions

CHALLENGE 2

What is the strategic challenge?

Decision-makers need to understand the environmental impacts of their decisions. Whether it is building a new road, or signing an international agreement, a clear understanding of the environmental impacts is a necessity. Often there are trade-offs to be made between social, economic and environmental benefits. To make better decisions we need to develop better data, information, analyses and tools.

Why is it important?

Better information leads to better decisions. Given the importance of transportation to the economy, society and environment, it is essential that government and stakeholders have access to accurate and reliable data and analysis. It is also important that governments cooperate and consult effectively with stakeholders to achieve harmonized approaches to transportation issues, with a broad degree of public support.

What's Transport Canada's role?

Transport Canada's mandate touches all modes of transportation — air, rail, road and marine — and affects all Canadians. The department has a role in ensuring that it makes decisions affecting the Canadian transportation system with the best information possible.

Examples of what Transport Canada is doing

Transport Canada has already taken important steps toward understanding the impacts of its decisions on sustainable development. For example, the department is improving its data on road transportation through a new Canadian Vehicle Survey and National Roadside Survey on Road Transportation Activity. This will result in a better understanding of how and why people travel, how far they go, and how to make transportation more efficient.

Transport Canada is also establishing a departmental policy on Strategic Environmental Assessment (SEA). SEA is a process by which the environmental impacts of policies and programs are considered early on in the decision-making process. The department recently completed a pilot project and is developing a model able to assess the environmental impacts of different investments in surface infrastructure.

As part of the development of a national climate change strategy, Transport Canada, Natural Resources Canada and Environment Canada developed indicators for fuel consumption, greenhouse gas emissions and criteria air contaminants (CACs). These indicators included emissions factors, transport activity indicators and intermodal comparisons.

What Transport Canada is committing to do

Commitment 2.1

Transport Canada will identify its sustainable development data requirements, and develop a strategy and implementation plan to address existing data gaps, by 2001/2002.

Commitment 2.2

Transport Canada will evaluate the impact of internalizing the social and environmental costs of the various transport modes, and develop a departmental position on cost internalization, by 2003/2004.

The department will also develop analytical models to determine and allocate full costs (including infrastructure, safety and environmental costs) for road, rail, marine and air modes, and their users, by 2002/2003.

Commitment 2.3

Transport Canada will work in close cooperation with the Centre for Sustainable Transportation (CST), Environment Canada and other federal departments and organizations (i.e. National Round Table on the Environment and the Economy and the Transportation Association of Canada) to develop a set of indicators to assess Canada's progress towards sustainable transportation, by 2003/2004.

Commitment 2.4

Transport Canada will approve a policy for conducting Strategic Environmental Assessments (SEA), and establish an internal awareness program to familiarize staff with the policy, by 2001/2002. The department will also undertake a research project to develop specific SEA tools to better assess the environmental impacts of its surface policies and programs, by 2001/2002.

Promoting Adoption of Sustainable Transportation Technology

CHALLENGE 3

What is the strategic challenge?

Developing and promoting the use of new and innovative technologies that reduce the environmental impacts of transportation while meeting the needs of passengers and shippers, is an important challenge for sustainable transportation.

Why is it important?

In the long term, technology holds the promise of providing Canadians with transportation options that are safe, efficient and environmentally friendly. In addition, new technology can reduce the costs of meeting environmental objectives and provide a basis for improvements in productivity and new markets for Canadian products and services. Important technology already exists; properly adapted and promoted, it can be very effective in promoting sustainable transportation.

What's Transport Canada's role?

Transport Canada adapts and promotes existing technology for use in the Canadian transportation system, and is involved in targeted research and development. The department also tries to ensure that existing regulations do not pose undue barriers to the introduction of advanced technologies.

Examples of what Transport Canada is doing

Transport Canada currently conducts a modest amount of research on technologies that improve the safety, security, energy efficiency and accessibility of the transportation system, while protecting the environment. This research allows the department to evaluate current trends in transportation research, integrate technological considerations into policies and programs, and support technologies that may contribute to sustainable transportation goals. Transport Canada provides funding for demonstration programs to encourage the application and use of new technologies across Canada.

Transport Canada has been a leader in intelligent transportation systems (ITS) research and development for several years. ITS integrates sophisticated information systems, advanced communications, sensor and control technologies and management strategies for use in transportation. These systems help to make travel safer and smoother on congested corridors, improve intermodal transfers, and speed the processing of travellers and goods across international borders. As a result, these systems improve the efficiency and reliability of transport operations for users, service providers and system operators.

In September 2000, Transport Minister David Collenette announced that the federal government had committed approximately $3 million to 19 cost-shared projects under Transport Canada's Intelligent Transportation Systems (ITS) Deployment and Integration Plan. For example, $250,000 was given to the City of Peterborough to plan and pilot an integrated traffic signal control and bus priority system.

The Transportation Development Centre (TDC), Transport Canada's centre for technological research and development, develops innovative solutions to transportation problems in all modes — air, marine, road, and rail — as well as in special areas such as transport of dangerous goods, security, and accessibility.

TDC is providing technical and financial assistance to *Electric Bike 2000*, a project initiated by the Centre d'expérimentation des véhicules électriques du Québec (CEVEQ). The project will allow 400 employees from 13 organizations to trade in their cars and ride an electric bike to work for two weeks.

In addition, Transport Canada is moving to improve safety regulations so that they support new environmental technologies. For example, regulations under the *Motor Vehicle Safety Act* now cover a new class of low-speed electric vehicles (LSVs) in Canada. Canada has set more stringent regulations on LSVs than the United States, so that Canadian LSVs are not permitted to produce any emissions.

What Transport Canada is committing to do

Commitment 3.1

Transport Canada will prepare and implement a five-year multi-modal intelligent transportation systems (ITS) research and development plan to support private-sector innovation and technology development, by 2000/2001. Selected research projects will be conducted in partnership with academia and private industry partners, such as ITS Canada and the NAFTA Technology Working Group.

Commitment 3.2

Transport Canada's Transportation Development Centre (TDC) will undertake, in cooperation with the federal Program of Energy Research & Development (PERD), research and development of new information and communication technologies to improve transportation systems, by 2003/2004. These technologies (sensors, communications, control, vehicle or vessel, location identification, navigation, data storage, and processing and display) will be applied to urban transportation, intermodal freight and air transport efficiency.

Commitment 3.3

Transport Canada's TDC will undertake, in cooperation with PERD, research and development to aid the development of lightweight and low-emission vehicles using fuel cells, electric and hybrid drives and their supporting infrastructures, by 2003/2004.

Commitment 3.4

Transport Canada will promote public awareness of advanced technology vehicles (ATVs) through:

- tests, inspections, evaluations, and reports on 10-15 advanced technology vehicles, detailing the ability of ATVs to comply with existing vehicle regulations (annually, starting in 2001/2002);
- the creation of a Green Vehicle program, identifying top 'green' vehicles for sale in Canada (by 2002/2003);
- a website that identifies 'green' vehicles for sale in Canada (by 2002/2003); and
- an assessment of the market penetration and potential of ATVs and barriers to their diffusion (by 2002/2003).

Improving Environmental Management for Transport Canada Operations and Lands

CHALLENGE 4

What is the strategic challenge?

Another challenge for sustainable transportation, for which Transport Canada has a direct responsibility, is to improve the department's own environmental practices and take action to mitigate the environmental impacts of the department's operations. The challenge is also to promote and facilitate the adoption of improved environmental management by those operating on Transport Canada lands.

Why is it important?

The federal government, as one of the largest organizations in the country, can provide leadership by example in environmental management. Transport Canada has developed an environmental management system (or EMS) which allows organizations to understand the nature of their environmental impacts and act accordingly. By showing leadership on environmental management, Transport Canada can reduce its own environmental impacts and lead by example for others in the transportation sector. Additionally, by the nature of its size, the federal government can support emerging environmental technologies in the marketplace, for example, by purchasing alternative fuel vehicles for its fleet.

What's Transport Canada's role?

Transport Canada is responsible for a wide range of operations and 1,110 properties as both landlord and, to a lesser extent, operator. The department's operations and properties include a fleet of aircraft and vehicles, as well as stores, warehouses and offices across Canada in both central and remote sites.

Although the department no longer directly operates many components of the transportation system, it retains the role of landlord and overseer for major components, including National Airport System (NAS) airports. In this role, Transport Canada is responsible for ensuring appropriate stewardship of its lands and facilities.

Examples of what Transport Canada is doing

Since its 1997 strategy, Transport Canada has concentrated its efforts on designing and implementing its EMS, based on the ISO 14001 standard, both at headquarters and in its five regions. The ISO 14001 standard was issued in 1996 by the International Organization for Standardization (ISO) to help organizations around the world control the impact of their activities, products or services on the environment.

In 1998, Transport Canada applied, in partnership with Environment Canada, the ISO 14001 Environmental Management System (EMS) to the Aircraft Services Maintenance Hangar at the Ottawa International Airport. This comprehensive effort identified the environmental issues and impacts of operations associated with an aircraft hangar. The results of this project will be used to promote the benefits of environmental management to the transportation sector as a whole.

Between 1996 and 1999, Transport Canada spent $21.4 million on assessments, $1.2 million on risk management (to assess and control the risk of environmental impacts) and $11.9 million on remediation of properties owned by the department.

Of the original ten targets which the department identified in its 1997 strategy, eight have either been met or are on schedule to be completed (Table 5.1). The department has achieved targets related to energy consumption, waste reduction, polychlorinated bi-phenyls (PCBs), storage tanks and ozone-depleting substances. It is on track to meet targets in water monitoring, environmental emergencies and contaminated sites, and is also taking action on air quality and fleet management. In 2000, the department launched an internal Green Commute program to promote sustainable commuting behaviour among its employees in the National Capital Region. Further information on Transport Canada's environmental management system is located at www.tc.gc.ca/envaffairs/english/ems.htm.

Transport Canada continues to meet its requirements under the *Canadian Environmental Assessment Act* (CEAA), the *Mackenzie Valley Resource Management Act* and the Nunavut Land Claim Agreement, undertaking environmental assessments of proposed projects to ensure that development

Table 5.1

Target	Status
Energy consumption	**Complete**
5% reduction by 2000	Baseline established for 1998/99 and reductions achieved
Non-hazardous waste	**Complete**
10% reduction by 2000	Implemented at office facilities
PCBs	**Complete**
Destruction by 2000	100% destruction
Storage tanks	**Complete**
Registration and upgrade by 2000	100% tank compliance with CEPA anticipated for 2000/2001
Ozone-depleting substances	**Complete**
Inventory by 1997	Inventory is on-line
Water monitoring	**Work in progress**
Monitoring at all sites by 2000	Annual monitoring reports compiled from TC airport data
Environmental emergency plans	**Work in progress**
Plans at all sites by 1999	Plans in place at TC airports
Contaminated sites	**Work in progress**
100% identification and management by 2003	Identification complete
Water consumption	**Cancelled**
5% reduction by 2000	Collection of water use data not cost-effective
Hazardous waste	**Cancelled**
10% reduction by 2000	Awaiting Environment Canada regulations on hazardous waste

proceeds in an environmentally sound manner. In 1999 alone, Transport Canada completed 247 environmental assessments for project proposals.

In the department's divestiture activities, preparations for the transfer of ports and airports include the identification and remediation of environmental problems. As a result, environmental clauses have been included in agreements for the transfer of airports, ports and NAV Canada facilities.

What Transport Canada is committing to do

Commitment 4.1

Transport Canada will meet six new targets for its EMS that focus on priority areas in the department's operations, by 2003/2004. (See Appendix B)

Commitment 4.2

Transport Canada will implement an environmental monitoring program for all its properties, including those operated by third parties, by 2003/2004. This will ensure compliance with regulations and identify best practices and existing or potential liabilities.

Commitment 4.3

Transport Canada will work with the Canadian Environmental Assessment Agency to close gaps in the Canadian Port Authority (CPA) Environmental Assessment Regulations under the *Canadian Environmental Assessment Act* (CEAA), and to enable other entities that manage Transport Canada lands, such as National Airports System Airport Authorities (NAS AAs), to be brought under the Act, by 2001/2002.

Commitment 4.4

Transport Canada will develop, as a pilot project, a natural resource inventory (NRI) for the Churchill Airport in accordance with the proposed endangered species legislation, by 2001/2002. Based on this work, Transport Canada will develop a guide by 2003/2004, for use at other departmentally owned and operated airports.

Transport Canada Waste Diversion Rates

Region/Facility	Solid Waste Measure
Transport Canada's Ottawa Headquarters	88% diversion rate from landfill
MacDonald Building, Winnipeg	24% diversion rate from landfill
Transport Canada Centre, St. John's	41% diversion rate from landfill
Heritage Building, Moncton	60% diversion rate from landfill
Ontario Regional Office, Toronto	79% diversion rate from landfill
Dorval Regional Office, Montreal	16.46 tonnes recyclables captured/year*
Champlain Harbour Station, Quebec City	2.78 tonnes recyclables captured/year*
Jean-Lesage International Airport, Quebec City	7.2 tonnes recyclables captured/year

*Weight attributed to Transport Canada-occupied space

Transport Canada's Fleet of Passenger Vehicles, 1998-1999

	Passenger Vehicles	Alternative-fuel* Vehicles	Percentage of Fleet on Alternative Fuel
1998	324	11	4.6
1999	309	32	10.4

*Natural gas, propane, ethanol or electric

CHALLENGE 5

Reducing Air Emissions

What is the strategic challenge?

A major challenge of sustainable transportation is to control or prevent air pollution and other air emissions from transportation, such as greenhouse gases, nitrogen oxides, volatile organic compounds, particulate matter and other air contaminants. This involves both short-term measures and the analysis and planning necessary to implement international agreements and new Canada-wide Standards for clean air.

Why is it important?

Transportation activities are a leading source of air emissions, contributing to climate change, smog and air pollution. If the Kyoto Protocol on climate change is ratified, Canada must reduce emissions of greenhouse gases to 6 per cent below 1990 levels by 2008–2012. This target will require partnerships with the transport sector and other orders of government, and actions by individual Canadians. The Canada-wide Standards on particulate matter and ozone, as well as Canada-United States agreements, are also expected to require significant reductions in the emissions of smog-forming pollutants.

Surveys indicate that Canadians are particularly concerned about the health impacts of air pollution, which include respiratory infection, reduced lung function, asthma attacks and premature death. Air pollution problems are projected to increase due to the warmer temperatures predicted with climate change.[8] Climate change could also cause greater fluctuations in weather conditions, crop production patterns, and water shortages.

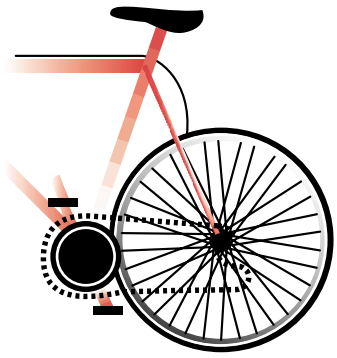
What's Transport Canada's role?

Transport Canada has the authority to regulate emissions of air pollutants from trains, aircraft and ships. With the recent passing of the *Canadian Environmental Protection Act*, however, the department no longer regulates motor vehicle emissions; this is now Environment Canada's responsibility. The department also works with Natural Resources Canada to promote greater fuel efficiency for road vehicles, which directly affects greenhouse gas emissions.

In addition to its regulatory role, Transport Canada could play a leadership role in promoting a more efficient transportation system with the provinces/territories, industry and the general public. This involves developing policy, supporting and carrying out research and development, demonstrating best practices, promoting public awareness, and providing infrastructure funding.

Examples of what Transport Canada is doing

Transport Canada co-chaired the Transportation Climate Change Table, which consisted of 25 members from across the transportation industry, consumer and environmental groups, the energy sector, the federal government, and Canadian provinces, territories and municipalities. The Table's mandate was to analyze options for reducing greenhouse gas emissions in the transportation sector. The Table completed 24 analytical studies, as well as a Companion Report on the Table's February 2000 consultations and a final Options Paper, all of



8 Health Canada. *Final Report on Health Impacts of the GHG Mitigation Measures*, January 2000

which were submitted to Transport Ministers and the National Climate Change Secretariat. The measures proposed in the Options Paper were considered along with the work of the 15 other Issue Tables in preparing a federal-provincial-territorial National Implementation Strategy (NIS) on climate change.

In October 2000, the Government of Canada announced its *Action Plan 2000 on Climate Change*, representing its contribution to the NIS. The Action Plan targets key sectors, including transportation, and, when fully implemented, will take Canada one third of the way to achieving its target established in the Kyoto Protocol. It will reduce Canada's greenhouse gas emissions by about 65 megatonnes per year during the commitment period of 2008-2012. Transport Canada led the development of the transportation sector strategy in the Action Plan.

Transport Canada and other federal departments participate in the Federal Smog Management Plan, working on initiatives such as vehicle inspection clinics. Additionally, the authority to regulate air pollution from rail transport was recently added to Transport Canada's *Railway Safety Act*.

Internationally, the department participates in the development of standards to reduce air emissions. For aircraft emissions, Canada is a member of the International Civil Aviation Organization (ICAO), an international body that fosters the planning and development of international air transport, and participates actively on the ICAO Committee on Aviation Environmental Protection (CAEP). For marine emissions, Canada is a member of the International Maritime Organization (IMO), an international body that develops international shipping standards, and participates in the IMO Maritime Environmental Protection Committee (MEPC). Through these organizations, Transport Canada can influence the global agenda and standards that provide the basis for national regulations.

What Transport Canada is committing to do

Commitment 5.1

Transport Canada will continue to lead the transportation component of the federal action plan on climate change. In particular, it will work with Natural Resources Canada, other departments and stakeholders to launch in 2001 the five transportation measures in the government's *Action Plan 2000*:

- **New Vehicle Fuel Efficiency** - to implement significant improvements through voluntary agreements with the auto industry, to be phased in between now and 2010, and harmonized with the United States. This initiative includes a consumer education campaign to aggressively promote the purchase of cleaner, more fuel efficient vehicles and fuels.
- **Community Transport Pilots** - to develop, with municipalities, provinces, territories and other partners, 4 to 5 showcases across Canada to demonstrate and evaluate a range of urban strategies to reduce emissions.

In 1998-1999, Transport Canada supported and co-chaired the Transportation Climate Change Table, a multi-stakeholder group mandated to identify specific measures to mitigate GHG emissions from Canada's transport sector. In November 1999, the Table published the results in its Options Paper. The Options Paper and an outline of the Table's work can be found at: http://www.tc.gc.ca/envaffairs/english/climatechange/ttable/

- **Freight Efficiency & Technologies** - to develop partnerships and voluntary agreements in the freight sector, to encourage the take-up of cost-effective practices and technologies, and identify opportunities for efficient integration of the freight modes.
- **Ethanol Support** - to encourage the construction of new ethanol plants in Canada in order to triple the supply and use of ethanol-blended gasoline by 2010.
- **Fuel Cell Partnership** - to work with fuel cell suppliers, fuel providers, the automobile industry and governments, to demonstrate and deploy hydrogen and other fueling infrastructure, and to encourage the uptake of fuel cell vehicles in Canada.

Commitment 5.2

Transport Canada will work with the International Civil Aviation Organization (ICAO) to develop new aircraft emissions standards and operational practices that address concerns about local air quality and global climate change, from 2000/2001 - 2003/2004.

Commitment 5.3

Transport Canada will work with Environment Canada to form an Interdepartmental Working Group to: examine rail emissions standards and current air emissions from locomotive engines; evaluate the existing Memorandum of Understanding between Environment Canada and the Railway Association of Canada; assess current US regulations; and develop a strategy to reduce air emissions from railway equipment, by 2001/2002.

Commitment 5.4

Transport Canada will review the *Motor Vehicle Safety Act* (MVSA) to determine the appropriateness of including authority to regulate fuel efficiency data and data submission requirements in the MVSA, by 2001/2002.

Reducing Pollution of Water

CHALLENGE 6

What is the strategic challenge?

Another challenge of sustainable transportation is to prevent or control the discharge of effluents and wastes that contaminate rivers, lakes, oceans, harbours and beaches, and to prevent the introduction of non-native aquatic species through the discharge of ships' ballast water. This includes measures to prevent, prepare for, and respond to accidental spills, and measures to reduce or eliminate routine discharges of effluent and waste. It also includes the creation of incentives for sound environmental practices.

Why is it important?

Transportation activities contribute to water pollution through the release of liquid effluents and waste. Transportation activities also create a risk of accidents that can release fuels or hazardous materials into the environment. Mitigating these impacts is important, in order to protect the integrity of aquatic and terrestrial ecosystems, avoid human exposure to hazardous substances, and preserve human enjoyment of the environment.

What's Transport Canada's role?

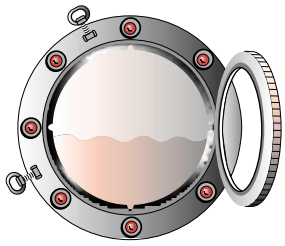
Transport Canada's mandate for water pollution prevention is derived in part from various pieces of legislation and international conventions — Transport Canada inspects ships and oversees ports.

Transport Canada is also developing the *Code for Polar Navigation* with other national administrations, for issue by the IMO. This new code is expected to help ships operating in polar waters meet appropriate standards of maritime safety and pollution prevention. Additionally, the department administers the *Arctic Waters Pollution Prevention Act* with Indian and Northern Affairs Canada and Natural Resources Canada, and the *Canadian Shipping Act*, both of which contain regulations that deal with pollution prevention.

Examples of what Transport Canada is doing

Transport Canada is a member of the IMO and participates in the Maritime Environmental Protection Committee. IMO standards and protocols deal with a variety of environmental stresses, oil pollution and other ship-source pollution such as garbage, dangerous goods and ballast water. Through these organizations, Transport Canada can influence the global marine transportation standards and, in turn, adopt them in Canada.

Transport Canada is also working with other departments, such as the Department of Fisheries and Oceans and Environment Canada, to implement a partnership agreement, or Memorandum of Understanding (MOU), on marine pollution prevention.



What Transport Canada is committing to do

Commitment 6.1

Transport Canada will identify third party discharges of effluent and waste at Canadian ports by 2001/2002.

Commitment 6.2

Transport Canada will facilitate the development of standards for waste handling at Canadian ports by 2002/2003.

Commitment 6.3

Transport Canada will, in cooperation with Fisheries and Oceans Canada and Environment Canada, improve the effectiveness of its existing ocean discharge monitoring and inspection regimes, by examining existing aerial surveillance activities in Atlantic waters and, if necessary, increasing aerial surveillance activities, by 2002/2003.

Commitment 6.4

Transport Canada will work with the marine industry, other government departments and interested stakeholders, through the Canadian Marine Advisory Council (CMAC), the International Maritime Organization (IMO) and the International Joint Commission (IJC), to develop new regulations and standards for ballast water management and other issues related to nuisance aquatic species, by 2002/2003.

Commitment 6.5

Transport Canada will develop regulatory programs to incorporate international regulations on marine pollution and air emissions from ships through the International Convention for the Prevention of Pollution from Ships (MARPOL) Annexes III (prohibiting the release of packaged dangerous goods), V (restricting the release of garbage) and VI (setting the standards on SOx, NOx, and ozone-depleting substances), beginning in 2001/2002.

Commitment 6.6

Transport Canada will, in cooperation with Fisheries and Oceans Canada (Canadian Coast Guard), explore whether implementing a performance standards program for environmentally sound ship operations, and incentives for green ship operations, would have a positive impact on reducing pollution of water and air, by 2002/2003.

Promoting Efficient Transportation

CHALLENGE 7

What is the strategic challenge?

Another challenge of sustainable transportation is to implement measures that improve the efficiency of the different modes of transport, as well as of the transportation system as a whole. While there is no single means of achieving efficient transportation, measures could include:

- encouraging more integration between transportation modes to increase competitiveness and reduce environmental impacts;
- promoting the development and funding of strategic transportation infrastructure;
- encouraging people to use more environmentally efficient modes;
- encouraging users to explore all transportation options available and choose the most efficient mode, particularly for shipping; and
- promoting advanced technologies that enhance system operations.

Why is it important?

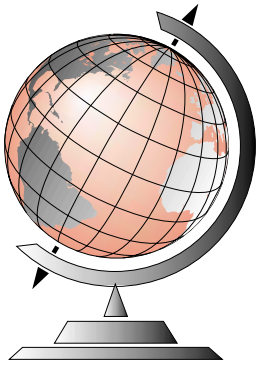
Inefficient movement of people and goods contributes to increased congestion, energy use and higher costs. When users choose the most efficient means and mode of transport, they achieve the same results with fewer or more effective trips. This in turn can enhance Canada's overall competitiveness and reduce environmental impacts.

What's Transport Canada's role?

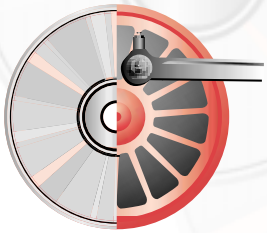
Federal legislation such as the *Canada Transportation Act*, the *Canada Marine Act* and the *Motor Vehicle Transport Act* establish a framework for the regulation of airlines, railroads, shipping lines, ferries, trucking companies and bus lines, as well as ports and the Great Lakes–St. Lawrence Seaway. However, Transport Canada must work in partnership with other governments and industry to promote and support efficient transportation systems that allow for greater linkages between modes and a more seamless system.

Examples of what Transport Canada is doing

Transport Canada has contributed to the deployment of various ITS technologies that facilitate intermodal activity and improve the efficiency of the transportation system. The Minister of Transport also recently announced $400 million in capital funding for VIA Rail to address key pressures in its existing system. These funds are to be targeted at renewing the system fleet; modernizing signaling on VIA-owned track; strategic improvements in the Quebec-Windsor Corridor; station refurbishment; environmental waste management improvements; and to explore better connections with commuter rail.



In April 2000, the Minister of Transport announced he would provide VIA with $400 million in capital funding to address key pressures, such as for system fleet renewal and waste management improvements.



On June 29, 2000, the Minister of Transport, the Honourable David Collenette, appointed a panel to conduct a comprehensive review of the *Canada Transportation Act* (CTA). This review will assess whether the CTA and related legislation provide Canadians with an efficient, effective, flexible and affordable transportation system. The review panel will also assess the extent to which the current framework provides the government with the necessary powers to support sustainable development objectives; and the advisability of measures to preserve urban rail corridors for future mass transit use.

What Transport Canada is committing to do

Commitment 7.1

Transport Canada will complete a comprehensive two-part forward-looking study related to modal integration in support of Canada's competitive position in a North American market place by 2002/2003. The study will explore potential public and private sector approaches to facilitate modal integration and address such issues as: efficiency gains in supply logistics, seamless transfer of goods, single way bill from origin to destination, sensitivity of commodities to shifts between transport systems and ITS, IT and other technological considerations.

Commitment 7.2

Transport Canada will develop and incorporate sustainable development criteria into its infrastructure funding agreements and programs, including the Airports Capital Assistance Program (ACAP), federally co-funded highway agreements and projects, and support for passenger rail, by 2002/2003.

Commitment 7.3

Transport Canada will work with provinces, municipalities and others to increase awareness of best practices in sustainable urban transportation, including:

- creating a website of best practices, in 2002/2003;
- launching a national awards program to recognize leaders, in 2002/2003; and
- sponsoring a national conference on urban transportation issues, in 2003/2004.

Measuring Performance

PART 6

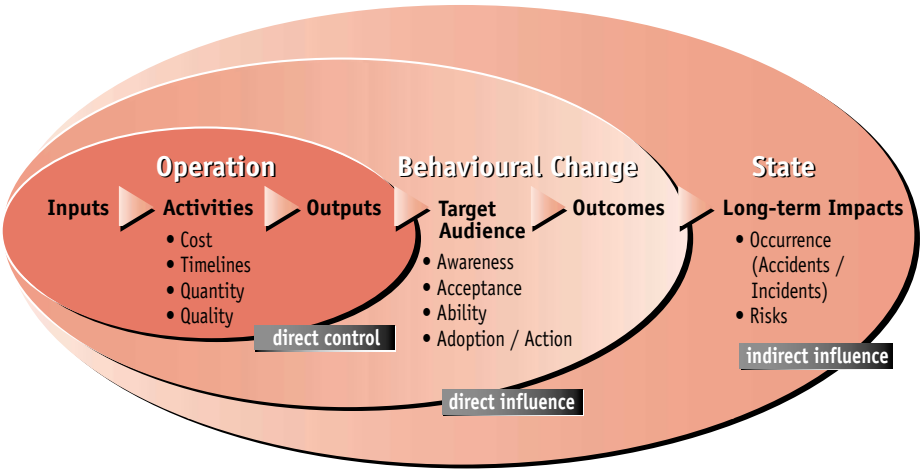
Continual improvement is key to the success of any sustainable development strategy. To do this, the department must review and evaluate its progress to determine whether its strategy is on track, whether activities are achieving the intended results, and where corrective action is needed. Accordingly, Transport Canada will assess and measure its performance in three ways:

1. First, did the department do what it said it would do? Transport Canada will measure progress in implementing the 29 commitments in this strategy.
2. Second, are these actions addressing the 7 challenges identified in the strategy? The department will monitor progress against selected indicators for each of the seven challenges.
3. Third, is Canada making progress on sustainable transportation? This is a longer-term effort; through commitment 2.3 the department is developing a series of indicators to monitor Canada's progress on sustainable transportation.

Transport Canada's Sustainable Development Action Plan 2001-2003 (insert) lists the indicators selected for Transport Canada's challenges and commitments.

In the fall of 1999, Transport Canada conducted a series of internal performance measurement workshops to define performance indicators for the *Sustainable Development Strategy 2001 - 2003*. Representatives from across the department participated in the six workshops, which resulted in a draft set of indicators based on the department's measurement framework.

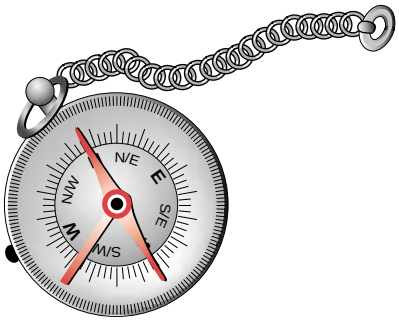
Figure 6.1
Spheres of Influence Model



Adapted from: "Transport Canada *Sustainable Development Strategy Performance Measurement Workshop Summary Report" Performance Measurement Network, 1999*

PART 7

FROM WORDS TO WORK



An integral part of any sustainable development strategy is a well thought out plan to systematically carry out that strategy, clearly demonstrate its positive impacts, and encourage ongoing improvement — in essence, to move effectively from words to work.

Transport Canada's experience with its first sustainable development strategy demonstrated that the department needs to improve its system for managing sustainable development and implementing its commitments. (See Appendix D for a summary of the sustainable development strategy review).

The ISO 14001 model for management systems

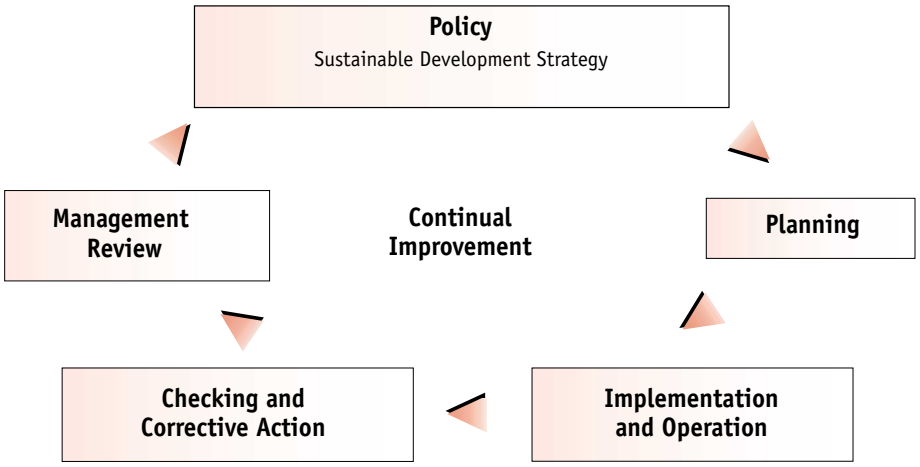
One of the most widely recognized standards for environmental management is the ISO 14001 model, which addresses organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for environmental policy. Figure 7.1 portrays the major components of the ISO management system.

Transport Canada will improve its ability to monitor progress in implementing its sustainable development commitments and targets, based on the ISO 14001 model as follows:

Policy

- Transport Canada recognizes that the support of the department's senior management is critical. The department will ensure that those senior managers responsible for implementing specific actions in this strategy include these commitments in their annual accountability accords.

Figure 7.1
A Continuous Improvement Model for Sustainable Development



Planning

- Transport Canada will extend the mandate of its internal Sustainable Development Strategy Committee beyond the year 2000. The Committee will meet regularly to oversee and coordinate implementation of the strategy, to ensure the department's sustainable development principles are applied to new policy and program initiatives and operations, and to foster better coordination of sustainable development activities across Transport Canada.

Implementation and Operation

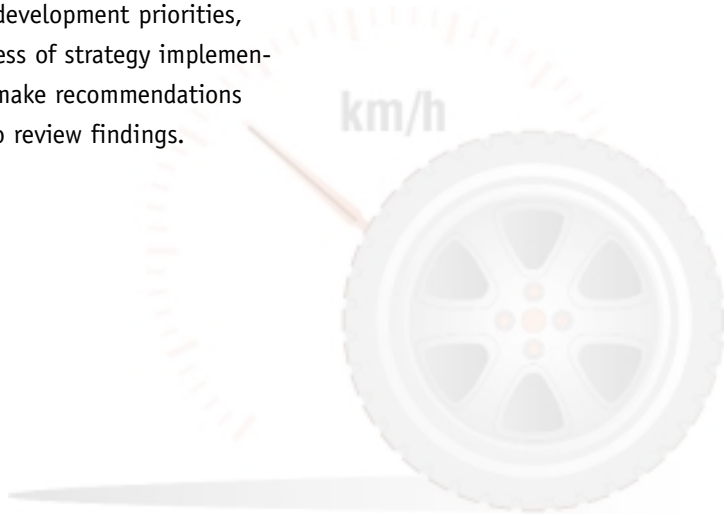
- Transport Canada will conduct training in sustainable development to help key managers and staff increase their knowledge of sustainable development. A pilot course will be implemented by 2001/2002, and, if successful, a full course will be implemented by 2002/2003.
- The department will integrate sustainable development principles into existing training courses, including Transport Canada's orientation course and other courses dealing with safety and management training, by 2002/2003.
- The department will increase efforts to help all employees understand the importance of sustainable development, by including sustainable development articles in departmental newsletters in 2001/2002.

Checking and Corrective Action

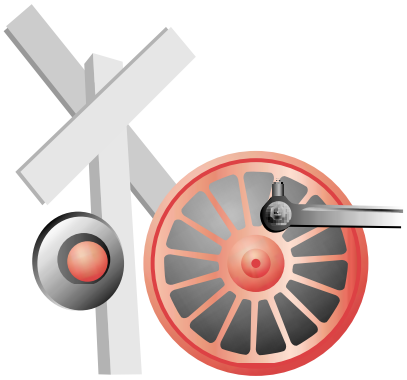
- Transport Canada will develop a database to monitor the status of strategy commitments, targets and deliverables by 2001/2002.
- An annual report on implementation of the strategy will be presented to Transport Canada's senior management committee.
- A status report on all sustainable development commitments, targets and indicators will be included in the department's annual Departmental Performance Report.

Management Review

- Transport Canada will conduct a review of its sustainable development strategy every three years — the next taking place in 2002/2003.
- Transport Canada will extend the mandate of its external National Advisory Group beyond 2000. The Group will meet annually to provide strategic direction on the department's sustainable development priorities, review progress of strategy implementation, and make recommendations pertaining to review findings.



Appendix A: Stakeholder Consultations



In promoting sustainable transportation, Transport Canada must work in cooperation with other federal departments, other orders of government, transportation and environmental organizations, and the public. The department appreciates the considerable input it received from across Canada in developing this strategy.

In March 2000, Transport Canada re-established its National Advisory Group, a multi-stakeholder group mandated to advise the department on the development of the strategy. At key times throughout the year, the department met with this group to receive their advice on the progression of the sustainable development strategy, including a discussion paper, the consultation process, and the final strategy. Their expertise was essential in forming this strategy.

As a key part of the sustainable development strategy process, Transport Canada conducted consultation sessions in eight cities across Canada in June 2000: Montreal, Vancouver, Calgary, Winnipeg, Toronto, Ottawa, Halifax and St. John's. In total, more than 200 participants attended the sessions, representing a broad range of organizations, including industry, government, environment, academic, labour and health stakeholders. (A complete list of participants follows.)

To facilitate the consultation process, Transport Canada prepared a discussion paper to help stimulate debate and focus discussions. This paper asked stakeholders to take stock of the department's first sustainable development strategy, provide input on the key sustainable development issues facing the department and the transport sector, and comment on the draft strategic challenges, commitments for action, and performance indicators.

The consultations were instrumental in shaping the *Sustainable Development Strategy 2001-2003*. Stakeholders recommended changes to both the content and format of the discussion paper. In general, stakeholders felt that Transport Canada should:

- take a stronger leadership role on sustainable transportation by acting as a facilitator and champion in bringing stakeholders together on key issues;
- ensure a balanced approach among environmental, social and economic objectives;
- strengthen its role in intermodal and urban issues;
- take greater action to reduce water pollution, greenhouse gas emissions, and air pollution;
- actively pursue strategic partnerships with government and industry, to avoid duplication of effort and build consensus;

- demonstrate how the department's commitments and actions will address the issues identified; and
- make the commitments, targets and performance indicators more concrete and measurable.

Stakeholder comments were incorporated into the strategy where possible. Commitments are now more concrete, and targets and measures for each commitment have been added. The department has added commitments on intermodal transportation, climate change, urban transportation, public awareness, marine pollution, and advanced technology vehicles. Overall, the strategy will lead to a better balance of environmental, economic and social considerations.

Some stakeholder suggestions, such as those relating to specific fiscal and tax measures and those on regulations for vehicle emissions and outboard motors, were not incorporated as they do not fall within Transport Canada's jurisdiction. A summary report and the eight individual session reports are available at: www.tc.gc.ca/envaffairs/english/sustain.htm.

From July to October 2000, Transport Canada continued the consultation process, meeting with its National Advisory Group and seeking the views of the provinces and territories, and other federal departments. Feedback was shared with Transport Canada managers responsible for specific commitments in the sustainable development strategy.

Coordinated consultations

Transport Canada worked in cooperation with the Department of Indian and Northern Affairs and other federal departments to hold two series of consultations in the North: one in the fall of 1999 and another in the spring of 2000. Transport Canada and other government departments attended sessions in Whitehorse, Rankin Inlet, Yellowknife, Iqaluit and Ottawa. These consultations raised the need to address accountability, traditional knowledge, community capacity building, energy efficiency and alternative sources, contaminants and economic development.

Transport Canada also participated in the Leader's Forum on Sustainable Development in April 2000. At this Forum, industry and other leaders gave strategic advice to federal departments on important horizontal issues, such as sustainable government operations, eco-efficiency and indicators, which are reflected in this document (Table A).

Table A

Transport Canada Linkages to the Eight Federal Sustainable Development Themes

		Federal SD themes							
		Sustainable Development of Government Operations	Indicators and Knowledge	Eco-efficiency	International	Northern	Sustainable Communities	Social and Cultural	Healthy Canadians
Transport Canada Challenges	**Challenge 1** Awareness	1.3			1.4			1.1	1.2
	Challenge 2 Tools		2.1, 2.2, 2.3, 2.4						
	Challenge 3 ST Technology			3.3, 3.4	3.1		3.2		
	Challenge 4 Environmental Management	4.1, 4.2, 4.3				4.4			
	Challenge 5 Air Emissions		5.3, 5.4		5.2		5.1		
	Challenge 6 Water Pollution	6.1, 6.2			6.3, 6.4, 6.5, 6.6				
	Challenge 7 Efficiency						7.3		

Participants in the Stakeholder Consultations

Members of the National Advisory Group on Sustainable Transportation:

Air Transport Association of Canada
Alberta Infrastructure
Bison Transport
Canadian Automobile Association
Canadian Industrial Transportation Association
Canadian Urban Transit Association
Canadian Shipowners Association
Canadian Vehicle Manufacturers' Association
City of Toronto
Friends of the Earth
National Round Table on the Environment and the Economy
Pollution Probe
Railway Association of Canada
Transportation Association of Canada
University of Manitoba
University of Toronto

Groups consulted on the *Sustainable Development Strategy 2001-2003*:

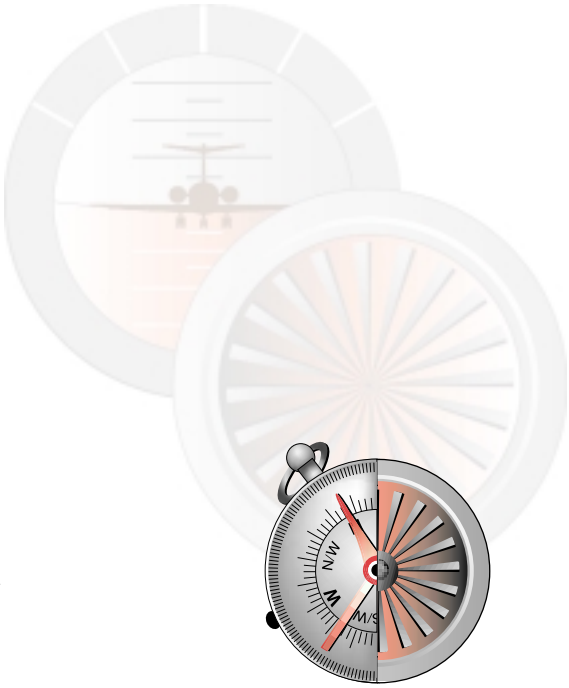
Representatives from these groups either attended one of the eight stakeholder workshops or submitted their comments in writing.

Academic

Association for Canadian Educational Resources
Carleton University
Memorial University of Newfoundland, Faculty of Engineering & Applied Science
University of British Columbia
University of Northern British Columbia
University of Calgary
University of Saskatchewan, Division of Environmental Engineering
University of Toronto
University of Winnipeg
York University

Industry/Modal

ACCD
Aéroports de Montréal
Air Canada
Air Transport Association of Canada
Airport Management Conference of Ontario
Alcan Aluminium Ltd.
Alliance of Manufacturers and Exporters Canada
Alternative Fuels Systems Inc.
Association constructeurs routes et grands travaux Québec
Association du camionnage du Québec
Association of International Auto Manufacturers
Association québécoise du transport et des routes
Atlantic Provinces Trucking Association
Atlantic Towing Ltd.
BC Aviation Council
BC Chamber of Commerce
BC Coalition of Motorcyclists
BC Ferries
BC Rail
Calgary Airport Authority
Canadian Airlines
Canadian Automobile Association
Canadian Chamber of Commerce
Canadian Freightways Limited
Canadian Pacific Railway
Canadian Petroleum Products Institute
Canadian Regional Airlines
Canadian Renewable Fuels Association
Canadian Trucking Alliance
Canadian Urban Transit Association
CanShip Ltd.
Cement Association of Canada
Chamber of Maritime Commerce
Chamber of Shipping
Chevron Canada
Council of Marine Carriers
EcoAccess Inc.
Edmonton Regional Airports Authority
Enbridge Consumers Gas
Espar Heaters
Fédération maritime du Canada
GO Transit
Halifax Municipal Transit Services
Halifax Port Authority
Hamilton Street Railway
Helijet Airways
ICG Propane Inc.
Irving Transportation
KIA Canada Inc.
Kings Transit
Manitoba Trucking Association
Marine Atlantic Inc.
MacDonald Dettwiler
Metro Transit
Motor Dealers' Association of Alberta
Mullen Transportation Inc.
NAV Canada Western Regional Office
Neptune Bulk Terminals
Newfoundland Environmental Industry Association
Newfoundland Marine Advisory Board
North Fraser Port Authority
Northumberland Ferries Ltd.
OC Transpo
Ontario Motor Coach Association
Ontario Trucking Association
Orion Bus Industries
Ottawa-Carleton Board of Trade
Petro-Canada
Port de Montréal
Port of Nanaimo
Prince of Fundy Cruises Ltd.
Purolator
Saint John Port Authority
Société de transport de l'Outaouais
St. Catharine's Transit
St. John's Board of Trade
St. John's International Airport
Stantec
Greater Toronto Airports Authority
Toronto Transit Commission
Toronto Trucking Association
Tourism Industry Association of Nova Scotia
TransLink
TRIMAC
Vancouver International Airport Authority



Vancouver Board of Trade
Vancouver Port Authority
Vaughan Transit
VIA Rail Canada
Vrtucar
Wardrop Engineering Inc.
West Coast Express
Winnipeg Airports Authority

Labour

Union canadienne des employés des transports

Environmental

Better Transportation Coalition
Bloor Street Airport Watch
Canadian Owners and Pilots Association
Canadians for Responsible Northern Development
Citizens for Better Public Transit in Winnipeg
Ecology Action Centre
EcoPerth
Environmental Law Centre
Equiterre
Go for Green
Green Alternatives Institute of Alberta
Green Communities Association
Green Tourism Association
Greenest City
Learning for a Sustainable Future
Moving the Economy
Pollution Probe
Ship-Source Oil Pollution Fund
Sierra Club of Canada
STOP
Sustainable Calgary
Sustainable Calgary Society
Table ronde de la jeunesse sur l'environnement
Toronto Hoof & Cycle Courier Coalition
Transportation Options
TRAX at the Ecology Action Centre
Victoria Centre for Appropriate and Responsible Transportation
Victoria Transport Policy Institute

Government

Agence de l'efficacité énergétique
Alberta Agriculture, Food and Rural Development
Alberta Infrastructure
Atlantic Canada Opportunities Agency
BC Ministry of Transportation and Highways
Canadian Coast Guard
Canadian Environmental Assessment Agency
Canadian Wildlife Service, Environment Canada
City of Burlington
City of Calgary
City of Ottawa
City of Vancouver
City of Winnipeg
Communauté urbaine de Montréal
Conseil régional de développment de l'Île de Montréal
County of Lethbridge
Environment Canada
Finance Canada
Fraser Valley Regional District
Greater Toronto Services Board
Halifax Regional Municipality
Ministère des Transports du Québec
National Capital Commission
Natural Resources Canada
New Brunswick Department of Transportation
Newfoundland and Labrador Department of Works, Services and Transportation
Northern Alberta Development Council
Northern Association for Community Councils
Northwest Territories Transportation
Nunavut Transportation and Highways
Office of the Auditor General
Ontario Ministry of Transportation
Ontario Ministry of the Environment
PEI Department of Transportation and Public Works
Public Works and Government Services Canada
Regional Municipality of Ottawa-Carleton

Saskatchewan Association of Rural Municipalities

Saskatchewan Highways and Transportation

Société de transport de la Communauté urbaine de Montréal

Société de transport de la Communauté urbaine de Québec

St. John's Transportation Commission

Ville de Montréal

Ville de Québec

Health

Alberta Lung Association

Interest Groups/Other

Alberta Association of Municipal Districts & Counties

Better Roads Coalition

Calgary Economic Development Association

Canadian Urban Institute

Centre for Sustainable Transportation

Coalition pour le maintien et l'utilisation accrue du Rail, Transport sur Rail au Québec

CREDDO (Outaouais)

Delcan

Federation of Canadian Municipalities

IBI Group

Nova Scotia Transportation Strategy Working Group

Rail Ways to the Future

RL Spark Transport Consultants Inc.

Saskatchewan Research Council

Sustainable Development International

Transport 2000

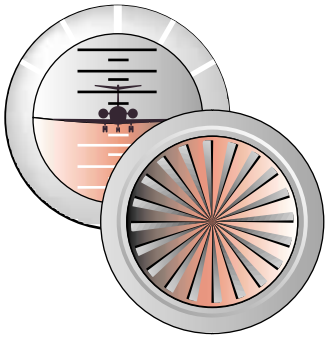
Western Transportation Advisory Council

Appendix B: Transport Canada's Environmental Management System Targets 2001-2003

Significant Environmental Aspect	Status in January 2000	Objective
1) Air Emissions	Transport Canada's GHG baseline is approximately 70 million kilograms of CO_2 equivalent in 1998/1999.	Measure, monitor, reduce and report GHG emissions from Transport Canada operations. Increase number of low emission vehicles (i.e. alternative fuel vehicles) in operational fleet.
2) Contaminated Land	Of 1,110 properties, Transport Canada has 686 potentially contaminated sites, of which 571 have been assessed and 115 are suspected for contamination and require assessment. From 1996 to 1999, Transport Canada spent $21.4 million on assessments, $1.2 million on risk management, and $11.9 million on remediation. From 1999 to 2000, the department spent approximately $15 million on assessment and remediation.	Identify and manage all Transport Canada contaminated sites.
3) Non-hazardous Waste	Eight Transport Canada facilities or offices conducted waste audits in 1999 and reported their rates of diversion from landfill.	Increase current landfill diversion rates at selected facilities.
4) Storage Tanks	Transport Canada owned and operated 146 tanks, of which 78 per cent are in compliance with the *Canadian Environmental Protection Act* (CEPA). Transport Canada anticipates 100 per cent compliance by 2001/2002.	Ensure compliance with CEPA Tank Technical Guidelines.
5) Environmental Emergencies	Environmental emergency plans were in place at all Transport Canada-owned and operated airports.	Increase environmental emergency planning at TC-owned and operated facilities.
6) Environmental Awareness	No baseline on awareness level of Transport Canada employees currently exists.	Increase awareness of TC employees on environmental issues, procurement and green commuting.

Target	Proposed Performance Indicators
• Finalize GHG emissions baseline by 2001/2002. • Adopt a formal GHG emissions reduction target, based on a share of the federal reduction target, by 2001/2002. • Report departmental GHG emissions annually from 2001. • 50 per cent of vehicles purchased between 2001 and 2003 to be low emission vehicles.	• Transport Canada emissions, expressed in CO_2 equivalents/ year, kilograms/year and per cent difference from baseline. • Per cent of low emission vehicles purchased of total annual vehicles purchased.
• Develop a contaminated sites management framework by 2001/2002. • Inventory and remediate or risk manage all sites by 2003/2004.	• Environmental costs and liabilities as reported to Treasury Board. • Number of contaminated sites undergoing remediation or risk management.
• Implement or increase non-hazardous waste recycling at selected Transport Canada Centres (TCCs): - Establish baseline in Vancouver by 2001/2002 and in Sudbury, Kingston and Pickering by 2002/2003. - 5 per cent improvement from baseline in Quebec by 2002/2003 and in Moncton, Dartmouth & St. John's by 2003/2004. - 10 per cent improvement from baseline in Winnipeg & Edmonton by 2003/2004. - Maintain and/or improve current 88 per cent diversion rate at Ottawa headquarters.	• Per cent waste diverted from landfill (i.e. recyclable waste/total waste) per year or per person. • Kilograms waste generated per person per year.
• Ensure 100 per cent compliance with CEPA Tank Technical Guidelines by conducting regional tank audits.	• Technical Guidelines. • Number of tanks audited per year per region.
• Revise and/or develop emergency plans for all TC-owned and operated facilities by 2003/2004.	• Per cent of plans in place. • Per cent of plans up to date (i.e. revised within specified time frame).
• Measure baseline awareness level of TC employees by 2001/2002. • Deliver targeted environmental management and sustainable development awareness programs by 2003/2004.	• Per cent increase in awareness, as measured by surveys or testing.

Appendix C: Definitions of Sustainable Transportation



There are a number of national and international interpretations of sustainable transportation. Four are noted below:

1. The Centre for Sustainable Transportation, a Canadian organization, defines sustainable transportation as a transportation system 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; and
   - limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, reuses and recycles its components, and minimizes the use of land and the production of noise.

Source: The Centre for Sustainable Transportation, Definition and Vision of Sustainable Transportation, September 1997

2. The Transportation Association of Canada (TAC) proposes that a truly sustainable urban transportation system would have the following characteristics:

a) In the natural environment:

- limit emissions and waste (that pollute air, soil and water) within the urban area's ability to absorb/recycle/cleanse;
- provide power to vehicles from renewable or inexhaustible energy sources. This implies solar power in the long run; and
- recycle natural resources used in vehicles and infrastructure (such as steel, plastic, etc.).

b) In society:

- provide equity of access for people and their goods, in this generation and in all future generations;
- enhance human health;
- help support the highest quality of life compatible with available wealth;
- facilitate urban development at the human scale;
- limit noise intrusion below levels accepted by communities; and
- be safe for people and their property.

c) In the economy:

- be financially affordable in each generation;
- be designed and operated to maximize economic efficiency and minimize economic costs; and
- help support a strong, vibrant and diverse economy.

Source: Transportation Association of Canada, Sustainable Urban Transportation Initiatives in Canada, to the APEC Forum on Urban Transportation, Seoul, Korea, November 20-22, 1996

3. Moving the Economy (MTE) is an evolving and expanding partnership dedicated to promoting, attracting investment to, and creating jobs in the sustainable transportation sector in the Toronto Region and beyond. MTE defines sustainable transportation as:

   - moving people and goods in cleaner, greener, healthier, safer, more equitable ways; and
   - where appropriate, moving people and goods less.

   This short description embraces a wide range of options, including:

   - telecommunications to reduce or replace travel, or make it more efficient (i.e. tele-working, tele-banking, tele-shopping, electronic signage, route optimization systems and more);
   - cleaner and more efficient systems for moving people, or for moving fewer goods, less;
   - land use planning and green development to bring people and their needs closer together and to make cities more vibrant and walkable;
   - sustainable personal transportation modes, including transit, walking, cycling, blading and scooters;
   - new approaches to automobile travel, including car pooling, car sharing, and cleaner, lighter vehicles and fuels; and
   - all the policies, practices, legislation, and financial incentives and disincentives that allow and promote these options.

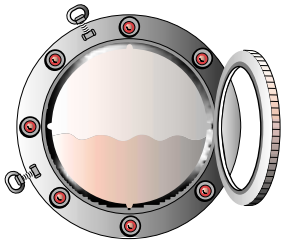
   Source: Moving the Economy, September 2000

4. The Environment Directorate of the Organisation for Economic Co-operation and Development (OECD) has defined environmentally sustainable transportation as:

   "transportation that does not endanger public health or ecosystems and that meets needs for access consistent with (a) use of renewable resources at below their rates of regeneration, and (b) use of non-renewable resources below the rates of development of renewable substitutes."

   Source: OECD EST Project Brochure, Project on Environmentally Sustainable Transportation, 1997

Appendix D: Results of Transport Canada's Sustainable Development Strategy Review



Transport Canada's first sustainable development strategy

In December 1997, Transport Canada tabled its first sustainable development strategy in Parliament. Spanning the department's internal operations as well as its policies, programs and legislation, the strategy was made up of eight strategic challenges and 47 commitments to action.

To date, many of the department's accomplishments have been in establishing the groundwork necessary to reach the longer-term objectives. The first three-year strategy was an ambitious and good first step toward integrating sustainable development into Transport Canada's activities, and promoting a sustainable transportation system for Canada.

Did the department do what it said it would do?

In March 2000, Transport Canada's Corporate Audit and Advisory Services group assessed the department's progress in implementing its first strategy, to see if it had accomplished what it intended to. (For more details, visit: www.tc.gc.ca/envaffairs/english/sustainability/mmen.htm). This review revealed that the department has taken significant action on about 85 per cent of its commitments (40 out of 47). One of the difficulties with this review, however, was measuring the status of those commitments which were on-going in nature or did not have clear and measurable targets. Over half of the commitments (26 out of 47) were ongoing in nature; however, several had identified annual or periodic deliverables which have been met or are on track.

Of the 21 commitments which were more measurable, 43 per cent were completed and 24 per cent were on schedule for completion, while 33 per cent were behind schedule. Since the time of the review, two additional commitments have been completed. Figure A summarizes Transport Canada's progress in implementing the measurable commitments of its first sustainable development strategy.

The main findings of the Management Review are outlined in Table B.

Figure A

Status of Transport Canada's Measurable Commitments, March 2000

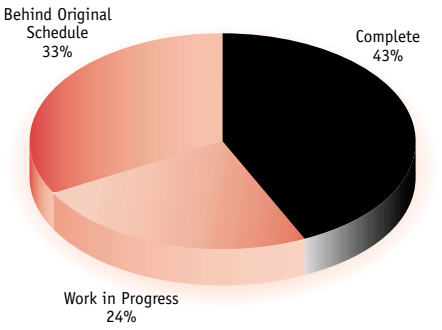


Table B

1997 Sustainable Development Strategy Management Review Findings

- Much of the department's accomplishments to date have been in establishing the groundwork necessary to support the achievement of longer-term objectives.
- The criteria used to assess the department's SD management framework reflected the management principles set out by the International Organization for Standardization (ISO) in its 14000 series of standards.
- Significant progress has been made by the department in the development and implementation of its EMS.
- Most challenges and commitments from the strategy were worded too vaguely. Commitments in Transport Canada's new strategy should be worded to facilitate meaningful measurement.
- The department needs to better define and document a framework that clarifies the processes and systems needed to consistently and reliably implement the strategy.
- To provide assurance that the strategy is reliable and consistently implemented, the strategy must better link into the department's regulatory programs, policy programs, grants and contributions programs, and operations and properties.
- Recent progress had been made in improving the departmental reporting of sustainable development progress in the Departmental Performance Report.
- Departmental performance against the strategy was difficult to measure since performance indicators had not been developed for most challenges.

What the department did well

In 1998 the department developed a workplan, *From Words to Work*, with 185 deliverables based on the department's first strategy. In the past three years, the department has met many of these deliverables and laid much of the groundwork necessary to help it achieve its longer-term sustainable development objectives. In doing so, it has also established a solid base on which to build its second strategy. (See Transport Canada's Sustainable Development Action Plan 1999 at: www.tc.gc.ca/envaffairs/MOST/ActionPlan_e.htm).

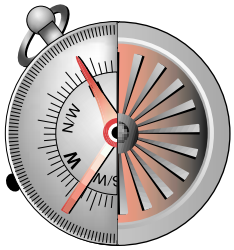
Lessons learned: opportunities for improvement

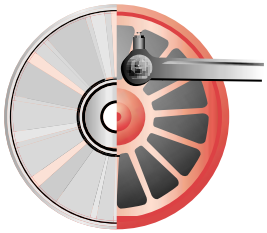
In many respects, it is fair to say that Transport Canada's first sustainable development strategy was an ambitious one. It set about to address a wide variety of environmental challenges from within existing departmental resources. The strategy was successful in many areas, presenting some challenges on the leading edge of sustainable transportation. Having said that, there is always room for improvement.

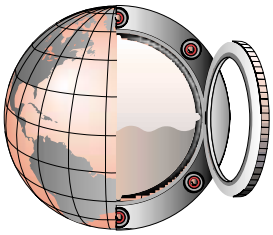
Like most federal government departments, Transport Canada can do a better job of more clearly defining its commitments by establishing measurable targets and performance indicators to monitor and report on implementation. These are fundamental to the success or failure of the sustainable development strategy process.

To give assurance that its second sustainable development strategy is reliably and consistently implemented, the department needs to make greater linkages between its sustainable development principles and its legislation, policies and programs. To do this, it needs additional internal training and awareness programs and concrete tools. Part 7 of this strategy outlines the department's commitments in accelerating implementation of a sustainable development management system, based on the ISO 14001 EMS model.

Glossary







Advanced Technology Vehicles (ATVs): Vehicles with available, or soon to be available, technologies able to improve fuel efficiency, reduce air emissions and contribute to the development of cleaner, sustainable transportation systems. Examples of advanced technologies include new powertrains and accessories (gasoline and diesel direct injection engines), new body construction and innovations (use of lightweight and/or recyclable materials, small size/dimensions), lightweight metals and composites, and advanced emission control devices and fuels.

Airport Capital Assistance Program (ACAP): A program developed by Transport Canada to assist eligible applicants (airport owner/operators) in financing capital projects related to safety, asset protection and operating cost reduction.

Biodiversity: The variety of different species, the genetic variability of each species, and the variety of different ecosystems that they form.

Canada-Wide Environmental Standards Sub-Agreement: A framework for federal, provincial, and territorial Environment Ministers to work together to address key environmental protection and health risk reduction issues that require common environmental standards across the country. Transport Canada has participated in the development of the first Canada-wide Standards on particulate matter and ozone, which will assist with meeting air quality standards.

Climate Change: A warming of the Earth's atmosphere caused by increases in the atmosphere of certain gases that absorb the radiation emitted by the Earth, thereby retarding the loss of energy from the system to space.

Cost Internalization: See Full-Cost Accounting

Eco-efficiency: A concept developed for business, eco-efficiency is reached by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle to a level in line with the Earth's estimated carrying capacity.

Ecosystem: An integrated and stable association of living and non-living resources functioning within a defined physical location.

Environmental Assessment (EA): A planning tool which systematically identifies and assesses the environmental effects of proposed projects before they occur, with the aim of taking the potential effects into account in project decision-making before irrevocable decisions are made.

Environmental Management Systems (EMS): A systematic approach for organizations to bring environmental considerations into decision making and day-to-day operations. It also establishes a system for tracking, evaluating and communicating environmental performance. An EMS helps ensure that major environmental risks and liabilities are identified, minimized and managed. The ISO 14001 standard, Environmental

Management Systems, is the standard within the ISO 14000 series that specifies the requirements of an environmental management system. *See also ISO 14000*

Equity: The fair distribution of the costs and benefits of human activity between people. Its two components are inter-generational equity and current equity among people or groups of people.

Full-Cost Accounting (Cost Internalization): An accounting method that determines total value or final price by internalizing non-market values such as environmental and social costs and benefits.

Greenhouse Gases (GHGs): Gases in the atmosphere that trap the sun's energy and thereby contribute to rising surface temperatures. The main greenhouse gas that contributes to climate change is carbon dioxide, a byproduct of burning fossil fuels.

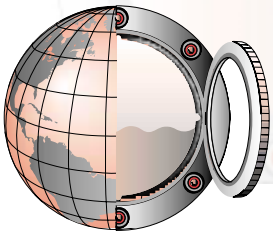
Indicators: A statistic, tracked over time, that provides trends in the condition of a phenomenon, beyond the properties of just the statistic itself. It points to, or provides the means to assess, progress toward an objective.

Intelligent Transportation Systems (ITS): The application, in an integrated manner, of advanced information processing (computers), communications, sensor and control technologies and management strategies, to improve the functioning of the transportation system.

Intermodal freight transportation: The use of two or more modes to move a shipment from origin to destination. An intermodal movement includes all aspects of the supply chain involved in the movement and transfer of goods under a single freight bill.

International Civil Aviation Organization (ICAO): Formed under the 1944 Convention on International Civil Aviation, with aims and objectives "to develop the principles and techniques of international air navigation and to foster the planning and development of international air transport." The Convention established certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically. Canada is a member.

International Maritime Organization (IMO): Established in 1948 by the United Nations Maritime Conference, the purposes of the Organization are "to provide machinery for co-operation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; and to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships." The Organization has 158 Member States, including Canada.



Issue Scan: An assessment of a department's activities in terms of their impact on sustainable development.

ISO 14000: A series of international, voluntary environmental management standards. Developed under International Organization for Standardization Technical Committee 207, the 14000 series of standards address the following aspects of environmental management: Environmental Management Systems (EMS), Environmental Auditing and Related Investigations (EA&RI), Environmental Labels and Declarations (EL), Environmental Performance Evaluation (EPE), Life Cycle Assessment (LCA), and Terms and Definitions (T&D). *See also Environmental Management Systems*

Kyoto Protocol: An International Protocol negotiated in December 1997 under the United Nations Framework Convention on Climate Change in Kyoto, Japan. Under the Protocol, Canada agreed to reduce its emissions of greenhouse gases to 6 per cent below 1990 levels during the five-year period of 2008 to 2012.

Moving On Sustainable Transportation (MOST) program: A contribution program established in 1999 by Transport Canada to support projects that produce sustainable transportation education, awareness and analytical tools.

National Advisory Group (NAG): A committee created in 1996 by Transport Canada to advise the department on the development and consultations of its 1997 strategy. Composed of transportation and environmental experts, the National Advisory Group was re-established by Transport Canada in 2000 to advise the department on its *Sustainable Development Strategy 2001-2003*.

Natural Resource Inventory (NRI): A process of characterizing natural resources, identifying valued ecosystem components, and determining potential impacts.

Non-Renewable Resources: Those natural resources that are in fixed supply, but whose lifespan can be extended through more efficient or reduced use, reuse or recycling (i.e. minerals, oil, coal).

Ozone Depletion: Stratospheric ozone (O_3) is formed from the conversion of oxygen (O2) molecules by solar radiation. It absorbs much ultraviolet (UV) radiation and prevents it from reaching the Earth. Certain ozone depleting substances (ODSs) are reducing the amount of ozone that absorbs this UV radiation.

Polluter Pays: The polluter should, in principle, bear the cost of pollution.

Pollution Prevention: The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants or wastes and reduce overall risk to human health or the environment.

Precautionary Principle: When there are threats of serious or irreversible damage, scientific uncertainty shall not be used to postpone cost-effective measures to prevent environmental degradation.

Rio + 10: The tenth anniversary of the 1992 Earth Summit will take place in 2002 and be marked by a head of state/government summit. In 1992, more than 100 heads of state met in Rio de Janeiro, Brazil, for the United Nations Conference on Environment and Development (UNCED). The 1992 Earth Summit was convened to address urgent problems of environmental protection and socio-economic development. The assembled leaders signed The Framework Convention on Climate Change and the Convention on Biological Diversity; endorsed the Rio Declaration and the Forest Principles; and adopted Agenda 21, a 300-page plan for achieving sustainable development in the 21st century.

Risk Management: The selection and implementation of a strategy of control of risk, followed by monitoring and evaluation of the effectiveness of that strategy. Risk management may include direct remedial actions or other strategies that reduce the probability, intensity, frequency or duration of the exposure to contamination.

Strategic Environmental Assessment (SEA): The systematic and comprehensive process of evaluating the environmental effects of a proposed policy, plan or program and its alternatives. SEA is a key tool for incorporating sustainable development considerations into government decisions.

Sustainable Development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

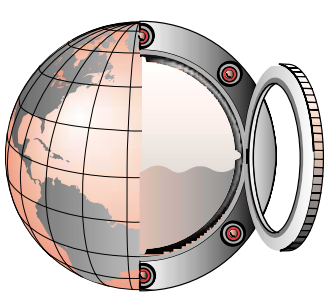
Sustainable Development Strategy: In accordance with the *Auditor General Act*, the strategy that each Minister responsible for a department is required to submit to Parliament every three years, beginning in 1997. It outlines the department's concrete goals and action plans for integrating sustainable development into its policies, programs and operations.

Sustainable Development Strategy Committee: Comprised of managers from each group and region of Transport Canada, the Committee was re-established in 2000 to oversee the development of the department's second sustainable development strategy and to provide a forum for sharing information and practices concerning sustainable development across the department.

United Nations Commission on Sustainable Development (UNCSD): The Commission on Sustainable Development (CSD) was created in December 1992 to ensure effective follow-up of the United Nations Conference on Environment and Development (UNCED) and to monitor and report on implementation of the 1992 Earth Summit agreements at the local, national, regional and international levels. The CSD is a functional commission of the UN Economic and Social Council (ECOSOC), with 53 members. UNCSD9 is the ninth meeting of the CSD and will take place in spring 2001 in New York. One of the key themes to be discussed at this session is sustainable transportation.

Transport Canada's Sustainable Development Action Plan 2001-2003: Challenges, Commitments, Targets and Performance Measures

Commitments	Targets	Performance Measures
Challenge 1: **Improving Education and Awareness of Sustainable Transportation**		***How the department will measure progress:*** *Level of Canadians' awareness of the environmental impact of transportation activities.*
1.1 Transport Canada will extend the Moving On Sustainable Transportation (MOST) program by two additional years to 2003/2004, and add resources to the program subject to Treasury Board approval. It will also implement a targeted marketing campaign to increase awareness of the program, by 2001/2002.	• Obtain approval to extend MOST by two years to 2003/2004, and increase resources to the program. • Undertake a review to determine the effectiveness, focus and future direction of MOST, by 2001/2002. • Implement a targeted marketing campaign by 2001/2002.	• Increase in stakeholder awareness, as measured by the number of applications to the program from October - November 1999 (baseline), and by average website visit length and number of repeat visitors. • Number of completed MOST projects. • Results achieved by MOST projects, specifically related to increased awareness, behaviour change and environmental impacts.
1.2 Transport Canada's Headquarters and Quebec Region, in partnership with Health Canada and Environment Canada, will develop tools for providing Canadians with information on active transportation options by 2002/2003. Examples include the development of brochures, a website, and a kiosk for sustainable development forums.	• Promote active transportation by developing material on active transportation options and their related health and environmental benefits, by 2002/2003. • Transport Canada's Quebec Region will develop and distribute a brochure (spring 2001), a kiosk, a sustainable development pilot project in Montreal, and a website, as well as engage in sustainable development forums and hold a regional workshop on sustainable development, by 2002/2003.	• Number of partnerships established and number of partners receiving or having access to the TC information materials.
1.3 Transport Canada will expand its Green Commute program to its regional offices, and promote adoption of the program by other federal departments across Canada. TC's Quebec, Ontario and Pacific regions will promote the program to large employers in Montreal, Toronto and Vancouver, by 2003/2004.	• Develop a generic "tool kit" containing all the information and material required for an organization to implement the Green Commute program, by 2001/2002. • Develop and test a workshop format that is applicable to any work environment, to be run as a full day training program, by 2002/2003. • Disseminate the tool kit as the primary resource and hold workshops for Transport Canada's regional offices by summer 2002, for other federal departments by fall 2002, and in Montreal, Toronto and Vancouver, by 2003/2004. • Develop resources to disseminate best practices resulting from this program to various organizations, such as a website and distribution material, by 2003/2004.	• Level of awareness of sustainable transportation by workshop participants, as measured by evaluation forms. • Number of Green Commute programs implemented in targeted cities as a result of the workshops. • Organizations' commuting behaviour and increased knowledge of sustainable transportation resulting from implementation of the Green Commute program, as measured by evaluation forms. • Anecdotal reporting/success stories from the various organizations, as a qualitative indication of progress.
1.4 Transport Canada will work with the transportation sector in Canada and abroad to promote best practices for environmental management by hosting a workshop in 2001, and by working with international transportation partners to promote best practices in environmental management, by 2003/2004.	• Hold a workshop in spring 2001, co-hosted by Transport Canada and the NAFTA Commission for Environmental Cooperation (CEC), to discuss experiences on environmental management systems (EMS), with sector representatives from various transportation modes. • Present the findings of Transport Canada's Aircraft Services pilot project (partnered with Environment Canada) on implementing an ISO 14001 environmental management system in the public sector by 2001/2002.	• Workshop attendance and feedback ratings from participants. • Number of transportation partnerships established through sharing of Transport Canada best practices.
Challenge 2: **Developing Tools for Better Decisions**		***How the department will measure progress:*** *There is no indicator for this challenge. Program indicators will be used to report on this challenge.*
2.1 Transport Canada will identify its sustainable development data requirements, and develop a strategy and implementation plan to address existing data gaps, by 2001/2002.	• Conduct a federal-provincial transportation data gaps identification initiative, by 2000/2001. • Conduct a transportation data needs study within Transport Canada, by 2001/2002. • Develop a strategy to address data needs, by 2001/2002.	• Level of satisfaction with study as measured by questionnaire responses. • Number of jurisdictions having implemented the data needs strategy.
2.2 Transport Canada will evaluate the impact of internalizing the social and environmental costs of the various transport modes, and develop a departmental position on cost internalization, by 2003/2004. The department will also develop analytical models to determine and allocate full costs (including infrastructure, safety and environmental costs) for road, rail, marine and air modes, and their users, by 2002/2003.	• Conduct a workshop to seek stakeholders' views on the results of a social cost internalization study, and on implementation issues, by 2001/2002. • Develop a non-integrated version of each of the three analytical models for road, rail, and marine transportation, by 2002/2003. • If successful, add air transportation and integrate the three models, by 2002/2003.	• Level of awareness and acceptance among stakeholders attending the consultation workshop, as measured by questionnaire. • Level of acceptance as shown by the number of participants in the developmental work of the models and their level of satisfaction with the process.
2.3 Transport Canada will work in close cooperation with the Centre for Sustainable Transportation (CST), Environment Canada and other federal departments and organizations (i.e. National Round Table on the Environment and the Economy and the Transportation Association of Canada) to develop a set of indicators to assess Canada's progress towards sustainable transportation, by 2003/2004.	• Conduct, in partnership with CST and others, a workshop to identify the needs of potential users of indicators. • Undertake, in partnership with CST and others, a detailed analysis to reduce the number of indicators to around 10, and hold a workshop to seek feedback from technical experts on draft results, in 2001/2002.	• Level of awareness as shown by the number and type of potential users that participate in the workshop and provide feedback. • Level of acceptance and use of indicators, as evidenced by adoption and use by other federal departments and organizations.
2.4 Transport Canada will approve a policy for conducting Strategic Environmental Assessments (SEA), and establish an internal awareness program to familiarize staff with the policy, by 2001/2002. The department will also undertake a research project to develop specific SEA tools to better assess the environmental impacts of its surface policies and programs, by 2001/2002.	• Approve a departmental SEA policy by 2001/2002. • Develop SEA training guide for TC staff by 2001/2002. • Conduct training workshops with TC staff in 2001 and ongoing. • Review SEA component of submissions to Minister and Cabinet, in 2001 and ongoing. • Monitor and report on implementation of TC SEA Policy by 2002/2003 in: - annual report to Deputy Minister, and - annual Departmental Performance Report to Parliament. • Complete a study to: determine scope and range of potential values of indicators; identify data challenges/gaps and outline actions to address them; and develop order-of-magnitude estimates of potential environmental impacts of TC's surface policies and programs, by 2001/2002. • Based on the results of this study, consider a similar project for the marine and air modes in 2001/2002.	• Level of knowledge gained through training courses, as measured by feedback form or limited survey. • Level of awareness of TC staff, as shown by the number of staff undertaking SEA training. • Completion of surface SEA tools to determine environmental impacts of the department's surface policies and programs. • Utilization and resulting impacts of SEA tools on surface policies and programs.
Challenge 3: **Promoting Adoption of Sustainable Transportation Technology**		***How the department will measure progress:*** *Amount and percentage of TC R&D funds committed to energy and environment.*
3.1 Transport Canada will prepare and implement a five year multi-modal intelligent transportation systems (ITS) research and development plan to support private-sector innovation and technology development, by 2000/2001. Selected research projects will be conducted in partnership with academia and private industry partners, such as ITS Canada and the NAFTA Technology Working Group.	• Develop a Canadian ITS standards framework that will ensure active Canadian participation and representation in national, regional and international standards development organizations, by 2000/2001. • Develop a multi-modal plan to identify ITS research and development priorities, by 2000/2001. • Design a framework for soliciting proposals from academia and private sector for projects that advance priorities, by 2000/2001. • Obtain additional funding for ITS research and development, by 2000/2001. • Co-fund and participate in research and development projects, by 2002/2003.	• Number of ITS projects co-funded and supported by TC that support national objectives and development of new ITS technologies. • Number of ITS projects that have resulted in the development of private sector technological applications/products. • Number of ITS research/demonstration projects that have matured into operational deployments in either the public or private sector.
3.2 Transport Canada's Transportation Development Centre (TDC) will undertake, in cooperation with the federal Program of Energy Research & Development (PERD), research and development of new information and communication technologies to improve transportation systems, by 2003/2004. These technologies (sensors, communications, control, vehicle or vessel, location identification, navigation, data storage, and processing and display) will be applied to urban transportation, intermodal freight and air transport efficiency.	• Undertake urban transportation R&D focusing on vehicle location and control technologies, passenger information systems, transit priority systems, on-board IT systems, and smart card payment systems, by 2003/2004. • Undertake intermodal freight R&D focusing on improved road/rail system efficiency, improved route management in major shipping routes, and improved port efficiency, by 2003/2004. • Undertake air transport R&D focusing on improved airport operations, aircraft operations and airport access, by 2003/2004.	• Annual amount of R&D undertaken, measured in dollar value, dollars leveraged, and % sustainable transportation/total R&D. • A reduction of 1.0 megatonnes (MT) of GHG emissions from improved traffic flows and vehicle operations, by 2010. • A reduction of 0.2 to 0.6 MT of GHG emissions from improved road/rail system efficiency and marine route management, and a reduction of 0.3 MT from improved port efficiency, by 2010. • A reduction of 0.5 to 0.8 MT of GHG emissions from improved airport and aircraft operations and improved airport access, by 2010.
3.3 Transport Canada's TDC will undertake, in cooperation with PERD, research and development to aid the development of lightweight and low-emission vehicles using fuel cells, electric and hybrid drives and their supporting infrastructures, by 2003/2004.	• Develop and test prototype vehicle components and systems, specifically power sources, control systems and auxiliaries, and driveline technologies; and field test pre-commercial prototypes, by 2001/2002. • Investigate promising new technologies to increase energy density through the identification of lightweight materials, by 2003/2004. • Investigate health, safety and environmental issues related to the development and use of fuel cell and electric and hybrid vehicle components, to provide a knowledge base for developing infrastructure (including policies, standards and guidelines); and produce a final report on health standards, by 2003/2004.	• A 40 per cent improvement in efficiency and emissions, through the use of laboratory and engineering prototype components and systems for control systems and auxiliaries, by 2001/2002. • Demonstration of seven new technology system components in 2001, 2002 and 2003. • A 20 per cent increase in energy density through identification of lightweight materials, by 2003/2004. • Number of laboratory and engineering prototype components and systems for driveline technology tested, by 2003/2004. • Number of systems and components to be tested that will improve energy efficiency in the range of 30 to 50 per cent, by 2003/2004.
3.4 Transport Canada will promote public awareness of advanced technology vehicles (ATVs) through: • tests, inspections, evaluations, and reports on 10-15 advanced technology vehicles, detailing the ability of ATVs to comply with existing vehicle regulations (annually, starting in 2001/2002); • the creation of a Green Vehicle program, identifying top 'green' vehicles for sale in Canada (by 2002/2003); • a website that identifies 'green' vehicles for sale in Canada (by 2002/2003); and • an assessment of the market penetration and potential of ATVs and barriers to their diffusion (by 2002/2003).	• Testing of 10-15 vehicles for safety/environmental standards from 2001/2002 - 2003/2004. • Awareness raising events starting in 2001/2002. • Green Vehicle program completed by 2002/2003. • Green Vehicle website completed by 2002/2003. • Assessment of ATV market potential by 2002/2003.	• Number of vehicles acquired, and tests/inspections/evaluations completed. • Level of public awareness and increase in awareness through public awareness events held. • Number of Green Vehicle guides, resulting from the program, distributed.
Challenge 4: **Improving Environmental Management for Transport Canada Operations and Lands**		***How the department will measure progress:*** *Number of entities on Transport Canada lands implementing environmental standards.*
4.1 Transport Canada will meet six new targets for its EMS that focus on priority areas in the department's operations, by 2003/2004. (See Appendix B)	1. Air Emissions: • Establish an accurate GHG emissions baseline by 2001/2002. • Adopt a formal GHG emissions reduction target, based on a share of the federal reduction target, by 2001/2002. • Report departmental GHG emissions annually, from 2001. • 50 per cent of vehicles purchased between 2001 and 2003 to be low emission vehicles. 2. Contaminated Land: • Develop a contaminated sites management framework by 2001/2002. • Inventory and remediate or risk manage all sites by 2003/2004. 3. Non-hazardous Waste: • Implement or increase non-hazardous waste recycling at selected Transport Canada Centres. 4. Storage Tanks: • Ensure 100 per cent compliance with CEPA Tank Technical Guidelines. 5. Environmental Emergencies: • Revise and/or develop emergency plans for all Transport Canada-owned and operated facilities by 2003/2004. 6. Environmental Awareness: • Measure baseline awareness level of Transport Canada employees by 2001/2002. • Deliver targeted environmental management and sustainable development awareness programs by 2003/2004. (See Appendix B for more details on Transport Canada's EMS targets.)	• Number of EMS targets that have been achieved. (See Appendix B for specific performance indicators.)
4.2 Transport Canada will implement an environmental monitoring program for all its properties, including those operated by third parties, by 2003/2004. This will ensure compliance with regulations and identify best practices and existing or potential liabilities.	• Identify five sites (one site per region) to monitor. • Complete and approve environmental monitoring reports, by 2002/2003. • Undertake follow-up monitoring to ensure corrective actions are implemented for identified deficiencies. • Use monitoring protocols to determine environmental compliance as per lease requirements, in partnership with others, by 2003/2004.	• Number of non-compliances or non-conformances identified per facility per year. • Percentage reduction in non-compliances or non-conformances per facility per year (long-term — once a baseline is determined). • Number/percentage of sites or operations monitored per year.



Commitments	Targets	Performance Measures
4.3 Transport Canada will work with the Canadian Environmental Assessment Agency to close gaps in the Canadian Port Authority (CPA) Environmental Assessment Regulations under the *Canadian Environmental Assessment Act* (CEAA), and to enable other entities that manage Transport Canada lands, such as National Airports System Airport Authorities (NAS AAs), to be brought under the Act, by 2001/2002.	• Make changes to the CEAA and regulations by fall 2001. • Implement monitoring program of current CEAA requirements at CPAs by spring 2001, and of amended requirements by fall 2002. • Assist the Canadian Environmental Assessment Agency in training CPAs and any other transportation entity regulated under CEAA, by 2001/2002. • Consult with CPAs and NAS AAs (if these are made subject to CEAA) on the proposed monitoring packages. • Implement monitoring programs at CPAs and NAS AAs, as required, by 2001 and 2002, respectively.	• Percentage of CPAs and NAS AAs monitored annually.
4.4 Transport Canada will develop, as a pilot project, a natural resource inventory (NRI) for the Churchill Airport in accordance with the proposed endangered species legislation, by 2001/2002. Based on this work, Transport Canada will develop a guide by 2003/2004, for use at other departmentally owned and operated airports.	Contract a natural resource consultant to: • Conduct a literature review and track survey by May 2001. • Conduct a field survey by July-August 2001. • Prepare a final report by February 2002. • Develop a generic NRI guideline by 2003/2004, for application to other Transport Canada-owned and operated airports.	• Improved understanding and awareness as measured by the number of endangered species and the level of risk identified at Churchill airport.
Challenge 5: **Reducing Air Emissions**		***How the department will measure progress:*** *Total air pollutants by mode. Total greenhouse gas emissions by mode.*
5.1 Transport Canada will continue to lead the transportation component of the federal action plan on climate change. In particular, it will work with Natural Resources Canada, other departments and stakeholders to launch in 2001 the five transportation measures in the government's *Action Plan 2000*: • **New Vehicle Fuel Efficiency** - to implement significant improvements through voluntary agreements with the auto industry, to be phased in between now and 2010, and harmonized with the United States. This initiative includes a consumer education campaign to aggressively promote the purchase of cleaner, more fuel efficient vehicles and fuels. • **Community Transport Pilots** - to develop, with municipalities, provinces, territories and other partners, 4 to 5 showcases across Canada to demonstrate and evaluate a range of urban strategies to reduce emissions. • **Freight Efficiency & Technologies** - to develop partnerships and voluntary agreements in the freight sector, to encourage the take-up of cost-effective practices and technologies, and identify opportunities for efficient integration of the freight modes. • **Ethanol Support** - to encourage the construction of new ethanol plants in Canada in order to triple the supply and use of ethanol-blended gasoline by 2010. • **Fuel Cell Partnership** - to work with fuel cell suppliers, fuel providers, the automobile industry and governments, to demonstrate and deploy hydrogen and other fueling infrastructure, and to encourage the uptake of fuel cell vehicles in Canada.	• Initiate a process with the automobile industry and the United States in 2001 to establish a voluntary target for significant improvements in new vehicle fuel efficiency across Canada and the U.S., to be fully phased in by 2010. • Launch the Community Transportation Pilots program in 2001/2002, and initiate showcases across Canada by 2003/2004. • Initiate discussions with the freight transportation industry in 2001 to establish voluntary initiatives to improve the fuel efficiency of the freight system. • Coordinate the launch of all five measures in the *Action Plan 2000* in 2001, within the framework of an integrated transportation strategy.	• Progress toward agreement on a voluntary new vehicle fuel efficiency target, as measured by the clarity and scope of the target, by 2003, and the level of industry endorsement for its implementation. • Number of community transportation showcases initiated, the range of climate change strategies and technologies being assessed, and the level of awareness of the program in municipalities across Canada as measured by their participation in the program's information network. • Increase in the number of voluntary initiatives in each freight mode to improve fuel efficiency, as well as the level of uptake of these initiatives by carriers within each mode, and the level of industry awareness of fuel efficiency strategies and technologies as measured by carrier surveys. • Successful launch of the transportation component of the *Action Plan 2000* in 2001, including the extent of linkages and mutual reinforcement between the individual programs within this strategy.
5.2 Transport Canada will work with the International Civil Aviation Organization (ICAO) to develop new aircraft emissions standards and operational practices that address concerns about local air quality and global climate change, from 2000/2001 - 2003/2004.	• Develop new engine standards that include emissions limits for nitrogen oxides during climb and cruise modes of flight, beginning in 2000/2001. • Develop and distribute the ICAO Circular, "Operational Opportunities to Minimize Fuel Use and Reduce Emissions," by 2001/2002.	• Level of compliance with ICAO standards.
5.3 Transport Canada will work with Environment Canada to form an Interdepartmental Working Group to: examine rail emissions standards and current air emissions from locomotive engines; evaluate the existing Memorandum of Understanding between Environment Canada and the Railway Association of Canada; assess current US regulations; and develop a strategy to reduce air emissions from railway equipment, by 2001/2002.	• Examine present requirements, including U.S. regulations, for air emissions from locomotive engines, by 2001/2002. • Develop a program to reduce railway locomotive emissions, by 2001/2002. • Work in partnership with Environment Canada to establish a new Memorandum of Understanding (MOU) between Transport Canada and the Railway Association of Canada, dealing with voluntary compliance with restricting railway locomotive emissions.	• Creation of a Working Group, by 2001/2002. • Development of a strategy and initiatives, by 2001/2002. • Establishment of a new MOU.
5.4 Transport Canada will review the *Motor Vehicle Safety Act* (MVSA) to determine the appropriateness of including authority to regulate fuel efficiency data and data submission requirements in the MVSA, by 2001/2002.	• Develop, in consultation with others, a set of recommendations regarding the inclusion of authority to regulate fuel efficiency data and data submission requirements in the MVSA, by 2001/2002.	• Decision on whether to include authority to regulate fuel efficiency data and data submission requirements in the MVSA.
Challenge 6: **Reducing Pollution of Water**		***How the department will measure progress:*** *Quantity of fuels or hazardous materials released, by mode, per transportation incident/accident. Number of oiled birds in Southeast Newfoundland*
6.1 Transport Canada will identify third party discharges of effluent and waste at Canadian ports by 2001/2002.	• Work with the Association of Canadian Port Authorities (ACPA) to identify discharges at ports by requesting an inventory of existing environmental problems on Crown lands, by 2001/2002. • Work closely with the ACPA (Environment Committee) to develop work plans, with timelines, to address environmental problems and determine the role of TC in the remediation process, by 2002/2003. • Prepare an inventory of problematic sites for TC-owned ports, by reviewing existing audits and environmental baseline studies, by 2001/2002. • Develop a monitoring framework for TC-owned ports that will include project identification, analysis and timelines for remediation, in 2002/2003.	• Number of third party discharges of effluent and waste at ports identified by ACPA and TC. • Number of remediation projects adopted and implemented by CPAs and TC ports.
6.2 Transport Canada will facilitate the development of standards for waste handling at Canadian ports by 2002/2003.	• Hold discussions with ACPA to determine the current practices governing waste reception for the CPAs, by 2001/2002. • Work closely with the ACPA to facilitate the development of an inventory of CPA reception facilities by 2002/2003, and assist, where needed, with the development of acceptable standards. • Prepare an inventory of facilities for TC-owned and operated ports, and assess the adequacy of their standards according to the "IMO Guidelines for Assessing the Adequacy of Port Waste Reception Facilities," by 2001/2002. • Identify the work required to bring their standards up to IMO level, by 2002/2003.	• Number/percentage of TC-owned and operated ports that have adequate standards according to IMO guidelines. • Number/percentage of CPAs that have adequate standards according to IMO guidelines.
6.3 Transport Canada will, in cooperation with Fisheries and Oceans Canada and Environment Canada, improve the effectiveness of its existing ocean discharge monitoring and inspection regimes, by examining existing aerial surveillance activities in Atlantic waters and, if necessary, increasing aerial surveillance activities, by 2002/2003.	• Follow-up on 100% of pollution reports and aerial sightings in Canadian waters, by 2001/2002. • Conduct a study to examine Transport Canada's aerial surveillance regime in Atlantic waters, by 2002/2003. • If deemed necessary based on above study, increase surveillance capacity in Atlantic Canadian waters, by 2002/2003.	• Increased aerial surveillance activity, as measured through number of flights, flight hours, etc. • Percentage of pollution reports and aerial sightings investigated by Transport Canada. • Increased number of prosecutions through the improved inspection and aerial surveillance program. • Number of spills or pollution activities observed through aerial surveillance.
6.4 Transport Canada will work with the marine industry, other government departments and interested stakeholders, through the Canadian Marine Advisory Council (CMAC), the International Maritime Organization (IMO), and the International Joint Commission (IJC), to develop new regulations and standards for ballast water management and other issues related to nuisance aquatic species, by 2002/2003.	• Meet with the CMAC and the IJC in 2001, and continue active participation with the IMO, on an ongoing basis. • Develop new regulations and standards for ballast water management in Canada, by 2002/2003. • Develop an implementation and audit strategy for new regulations and standards, beginning in 2003.	• Development of new standards/regulations by 2002/2003. • Assessment of the impact of new provisions, as measured by a review of the number of new aquatic nuisance cases being reported annually.
6.5 Transport Canada will develop regulatory programs to incorporate international regulations on marine pollution and air emissions from ships through the International Convention for the Prevention of Pollution from Ships (MARPOL) Annexes III (prohibiting the release of packaged dangerous goods), V (restricting the release of garbage) and VI (setting the standards on SOx, NOx, and ozone-depleting substances), beginning in 2001/2002.	• Proactively participate and contribute to the creation of guidelines and standards at International Maritime Organization meetings, on an ongoing basis. • Research, in partnership with Fisheries and Oceans Canada and industry stakeholders, enforcement inconsistencies, overlaps and gaps, as well as impediments to MARPOL Annex adoption, and implement solutions to address the above issues, beginning in 2001/2002. • Consult with industry and other stakeholders in order to implement necessary regulatory changes, beginning in 2001/2002. • Implement MARPOL Annexes III, V and VI, through the development of appropriate national regulations, beginning in 2001/2002.	• Canadian accession to MARPOL Annexes. • Implementation of MARPOL Annexes through amended or new regulations.
6.6 Transport Canada will, in cooperation with Fisheries and Oceans Canada (Canadian Coast Guard), explore whether implementing a performance standards program for environmentally sound ship operations, and incentives for green ship operations, would have a positive impact on reducing pollution of water and air, by 2002/2003.	• Hold regular meetings, beginning in 2000/2001, with Fisheries and Oceans Canada and other interested parties to discuss performance standards. • Study the impact of implementing performance standards and the costs and feasibility of offering incentives, by 2002/2003. • If deemed beneficial, in cooperation with Fisheries and Oceans Canada and other fee-charging organizations, implement a performance standards/incentives program for environmentally sound ship operations, by 2002/2003.	• Decision on whether to implement a green ship program, and resulting impacts (environmental and awareness) if implemented.
Challenge 7: **Promoting Efficient Transportation**		***How the department will measure progress:*** *Economic Efficiency* *• Productivity of transportation industries (annual % increase)* *• Unit costs of transportation industries (annual % increase)* *Fuel Efficiency* *• Energy/passenger-km (passenger)* *• Energy/tonne-km (freight)*
7.1 Transport Canada will complete a comprehensive two-part forward-looking study related to modal integration in support of Canada's competitive position in a North American market place by 2002/2003. The study will explore potential public and private sector approaches to facilitate modal integration and address such issues as: efficiency gains in supply logistics, seamless transfer of goods, single way bill from origin to destination, sensitivity of commodities to shifts between transport systems and ITS, IT and other technological considerations.	• Conduct a two-part study to provide a critical assessment of the limitations and shortcomings that impede modal integration and the competitiveness of Canadian transportation systems in a North American context, and provide a detailed set of recommendations, by 2002/2003. • Develop and submit recommendations for next steps to achieve a more integrated transportation system by 2002/2003. • Initiate implementation of identified options and recommendations by 2003/2004.	• Number of recommendations implemented. • Improvements in modal integration, such as reduced connection times, improvement in load transfers and improved trip times.
7.2 Transport Canada will develop and incorporate sustainable development criteria into its infrastructure funding agreements and programs, including the Airports Capital Assistance Program (ACAP), federally co-funded highway agreements and projects, and support for passenger rail, by 2002/2003.	• Review existing programs and agreements for any current application of sustainable development criteria or other environmental indicators, by 2001/2002. • Develop a set of sustainable development criteria, by 2001/2002. • Integrate criteria into funding agreements and programs on an ongoing basis after 2002/2003. • Evaluate performance of criteria after implementation, beginning in 2003/2004.	• Percentage of TC funding agreements and programs using established criteria. • Quantifiable improvements such as improved safety, reduced costs and environmental impacts.
7.3 Transport Canada will work with provinces, municipalities and others to increase awareness of best practices in sustainable urban transportation, including: • creating a website of best practices, in 2002/2003; • launching a national awards program to recognize leaders, in 2002/2003; and • sponsoring a national conference on urban transportation issues, in 2003/2004.	• Launch website by 2002/2003. • Develop terms of reference and criteria for an awards program, with the help of a multi-stakeholder committee, by 2001/2002. • Promote the program from November 2001 to January 2002. • Hold the first awards ceremony in 2002 and the second ceremony in 2003. • Chair a session on urban transportation at a national transportation conference, by 2002/2003. • Sponsor conference in 2003/2004. • Publish conference proceedings by winter 2004.	• Number of website visits. • Number of submissions received by the awards program. • Level of media coverage for the first and second awards ceremonies. • Number of conference participants. • Perceived value of the conference, as evaluated by participants in feedback forms.

Sustainable Development Strategy 2001-2003

Transport Canada