Transport Canada Transports Canada

TP 13123
(12/2006)

Sustainable Development Strategy 2007-2009

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Canada

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ISBN: 0-662-44392-6
Catalogue No. T22-104/2007E-PDF

TP 13123
(12/2006)

Printed on Recycled Paper

Minister's Message

Sustainable transportation is a concept that promotes a balance of the economic, social and environmental dimensions of transportation. To preserve and strengthen Canada's transportation system and advance Canadians' quality of life, transportation policy must provide a framework that addresses these three elements of sustainable transportation.

Transportation is fundamental to Canada's economic prosperity and Canadians' quality of life. To maintain and improve our competitiveness, we need to ensure our transportation system is efficient and responsive to new challenges. We must ensure that it addresses key environmental priorities such as clean air, greenhouse gas emissions reduction, clean land and clean water. The Government is deeply committed to improving air quality and to achieving concrete results. Our approach is national in scope. The recently unveiled Clean Air Regulatory Agenda will enable the federal government to implement measures to reduce the emissions of both air pollutants and greenhouse gases from the transportation sector. To this end, the Government will take immediate action to address air emissions from transportation sources. More specifically, Transport Canada will develop new regulations that will limit emissions from new motor vehicles and railways and ensure that international emissions standards for marine transportation and aviation are applied domestically. These and other initiatives included within this document will take us closer to achieving our vision for sustainable transportation in Canada.

Therefore, I am pleased to present Transport Canada's *Sustainable Development Strategy 2007-2009*. This is our fourth strategy since 1997. The first provided a sound foundation for integrating environmental considerations into the decisions, policies and programs of the department. The second strategy built on the accomplishments and lessons learned from the first strategy, adopted a set of sustainable development principles, identified priority challenges and made specific commitments to action. The third strategy brought more precision to the concept of sustainability, and defined the seven challenges that have been retained for the fourth strategy. The fourth strategy takes a long-term approach that includes focused, results-oriented commitments in areas that Transport Canada can make a difference. We have benefited from streamlined consultations focused around specific themes. We have focused our efforts on what we can do to facilitate more sustainable activities in our urban areas, in the movement of goods and in the marine environment.

This new strategy takes important strides in continuing the drive towards a more sustainable transportation system for all Canadians. Transport Canada recognizes that it cannot do this alone. To develop this strategy, the department drew on the expertise of a national advisory group, other federal departments, other levels of government and consulted expert stakeholders from across the country.

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 Lawrence Cannon, P.C., M.P.
Minister of Transport, Infrastructure
and Communities

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Sustainable development and Transport Canada

Transportation takes place within a complex web of human and physical interactions and conditions. Trends in the environment, the economy and society affect the nature and scale of transportation activity, the impacts of that activity, and our responses to those impacts. The nature and volume of trade drives the demand for freight transportation. Similarly, the size of the population, its habits, income levels, the cost of energy and land use patterns affect passenger travel.

Transportation is fundamental to Canada's economic prosperity and Canadians' quality of life. To maintain and enhance our competitiveness, we must ensure our transportation system is efficient and able to adapt to new challenges as they arise. To enhance our quality of life, we also need to ensure that our system is safe, secure and environmentally responsible.

To preserve and strengthen Canada's transportation system and advance Canadians' quality of life, transportation policy must provide a framework that addresses the three elements of sustainable transportation – social, economic and environmental. It must also give carriers and infrastructure providers the opportunity to adapt, innovate, compete and serve shippers and travellers, in a way that takes into account each of these elements. The fundamental policy challenge is to find the right balance among these three elements.

Transport Canada and other federal departments have tabled three consecutive sustainable development strategies in Parliament, the tabling dates being December 1997, February 2001 and February 2004, respectively. This fourth strategy provides Transport Canada with an excellent opportunity to build upon the strong foundation that has been put in place by the previous strategies.

In response to recommendations put forth by the Commissioner of the Environment and Sustainable Development, a goal for this strategy was to streamline the process and focus on a smaller number of issues where Transport Canada can make a difference. The department chose three themes at the heart of sustainable transportation in order to focus its efforts: urban transportation; commercial freight transportation; and marine transportation.

The challenge of sustainable transportation

Canada's size and dependence on international trade make transportation very important to Canadians. Transportation – by land, water and air – links Canadians to each other and Canada with the world. Transportation moves goods to markets and people to their destinations, provides jobs and supports economic growth. Canada has a well-developed transportation system, with large investments in infrastructure, vehicles and fuel distribution networks.

Many of the social impacts of transportation are positive such as mobility and human contact. However, there are social issues associated with the lack of access, availability and unintended effects of the operation of the transportation system. For example, health studies estimate that air pollution contributes to more than 5,000 premature deaths in Canada each year, as well as to numerous health-related problems.

Transportation has a wide range of impacts on the environment, including resource use (materials and energy), undesirable residuals (emissions, spills and leaks), and land use. Among those, some of the transportation activities that contribute to these impacts are: the construction of infrastructure; road system operation and maintenance; the production, operation, maintenance and disposal of vehicles; and, the provision of energy and fuel.

Poor air quality is a growing dilemma in Canada as there are numerous social, economic and environmental impacts that accompany it. One cause of air pollution and smog is congestion, which is a major challenge for some urban areas.

Working together

Given the nature of sustainable transportation issues and its shared jurisdiction, strong and effective partnerships are required with other federal departments, other levels of government, stakeholders and individual Canadians. A number of commitments, set out in Part 6 of this document, will be undertaken in partnership.

In addition, for this fourth round of sustainable development strategies, the federal government has developed a set of six sustainable development goals related to Clean Water, Clean Air, Reducing Greenhouse Gas Emissions, Sustainable Communities, Sustainable Development and Use of Natural Resources, and Governance for Sustainable Development. Many of the commitments within Transport Canada's *Sustainable Development Strategy 2007-2009* serve to support these goals.

Consultations

In preparation for our 2007-2009 strategy, Transport Canada engaged selected experts and stakeholders to provide focused guidance in each of the three theme areas: urban transportation; commercial freight transportation; and marine transportation.

The consultation process for this strategy took place through a series of three workshops, each specific to one of the three themes. The purpose of the workshops was to assist Transport Canada in defining the challenges and identifying possible commitments for the 2007-2009 strategy.

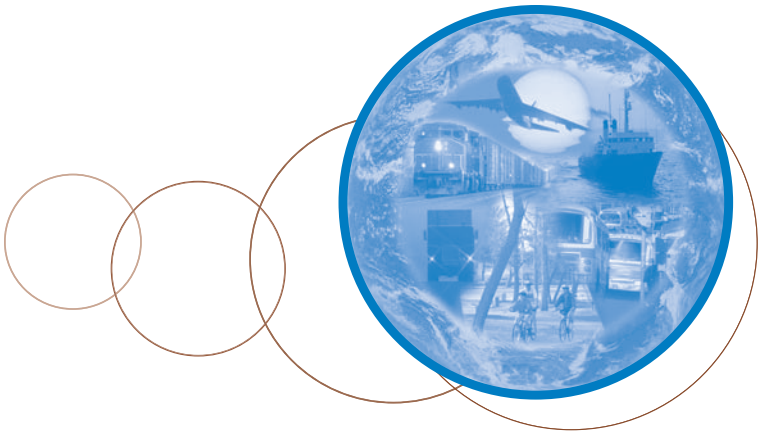
Within each workshop, a rich assortment of experts gave presentations spanning a wide variety of topics, which provided a basis for discussion of various opportunities, ideas, challenges and commitments to consider for the 2007-2009 strategy. The recommendations and advice provided by participants were valuable in shaping the *Sustainable Development Strategy 2007-2009*.

Appendix A provides the results of the consultations sessions and the full list of workshop participants.

Strategic challenges for Transport Canada

Transport Canada has structured its 2007-2009 Sustainable Development Strategy (SDS) action plan around seven strategic challenges. These are the same challenges that were identified in the 2004-2006 strategy.

1. Encourage Canadians to make more sustainable transportation choices.
2. Enhance innovation and skills development.
3. Increase system efficiency and optimize modal choices.
4. Enhance efficiency of vehicles, fuels and fuelling infrastructure.
5. Improve performance of carriers and operators.
6. Improve decision-making by governments and the transportation sector.
7. Improve management of Transport Canada operations and lands.



Part 1:

INTRODUCTION

Transportation is fundamental to Canada's economic prosperity and Canadians' quality of life. To maintain and enhance our competitiveness, we must ensure our transportation system is efficient and responsive to new challenges. To enhance our quality of life, we also need to ensure that our system is safe, secure and environmentally responsible.

In practical terms this means that, 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. Sustainable development is a concept that promotes a balance of the economic, social and environmental dimensions of transportation.

In its 1987 report, *Our Common Future*, 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 adopted this definition. In 1995, it 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 2007-2009* builds on the accomplishments and lessons learned in previous sustainable development strategies. It charts the department's course of action for the next three years.

In February 2006, the portfolio of Transport, Infrastructure and Communities was created, which includes Transport Canada, Infrastructure Canada, and sixteen Crown corporations. The portfolio is a point of convergence for some of the most important issues facing Canada today: the productivity of the economy; transportation safety and security; environmental sustainability; and the quality of life in cities and communities. It brings together a range of tools, including programs, legislation, policy frameworks and stakeholder networks to advance the Government's priorities in a cohesive and coordinated manner. Although the strategy remains a Transport Canada document, there are important crossroads between the two departments when it comes to promoting sustainable transportation. These are areas where we will continue to work together towards achieving common goals.

In keeping with previous strategies, the *Sustainable Development Strategy 2007-2009* has, at its core, seven strategic challenges facing transportation. For each challenge, the department has defined specific commitments for action, along with targets and performance measures. While retaining the seven strategic challenges for the *Sustainable Development Strategy 2007-2009*, three topics at the heart of sustainable transportation have been chosen to further focus the department's efforts: urban transportation; commercial freight transportation; and marine transportation. These topics are important to the overall sustainability of the transportation system. These are also topics where it is thought that the department can make a significant contribution, and where there are significant opportunities.

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 reached overnight, nor can it be achieved by Transport Canada acting alone.

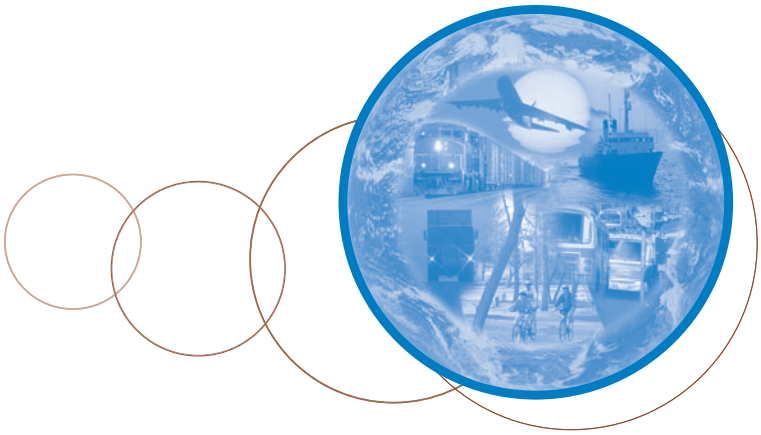
Although this strategy represents an important step, Transport Canada recognizes that progress towards sustainable transportation is a long-term goal for which new strategies will be required as new technologies and economic opportunities arise. The principles and approaches set out in this document present a foundation on which the department will seek continuous improvement.

The fourth strategy

The strategy is divided into seven parts and includes four appendices.

Part 2 of this strategy describes Transport Canada's role and the responsibilities of various jurisdictions. Following this, Part 3 outlines the department's vision of a sustainable transportation system along with the strategic outcomes that the department has committed to in the *Report on Plans and Priorities*. Part 4 describes the key issues in transportation and the themes that have been selected for 2007-2009, which are: urban; commercial freight; and marine transportation. This section also outlines what the department intends to do in response to the issues identified in relation to the three themes. Part 5 outlines how Transport Canada will measure its performance and includes the department's SDS results chain. Part 6 of this document includes Transport Canada's SDS Action Plan, which outlines the challenges, commitments, targets and performance measures for the 2007-2009 period. Part 7 includes the department's SDS management plan and includes specific targets to improve implementation.

The strategy also includes four appendices. Appendix A includes the results of stakeholder consultations. Appendix B is the Environmental Management System Framework, which is included at a broader level as commitment 7.1. Appendix C is the results of the SDS Management review. Appendix D includes Transport Canada's sustainable development principles, which were adopted in the second SDS (2001-2003). Finally, the strategy is completed by a glossary, which defines many of the terms used throughout the document.



Part 2:

TRANSPORT CANADA'S ROLE

A long history

Transport Canada was created in 1936 by combining the Marine Department, the Department of Railways and Canals, and the civil aviation branch of the Department of National Defence.

Committed to providing the best transportation system

The department has evolved significantly over the years in terms of its organization and responsibilities. However, the overall objective remains to provide Canadians with the best transportation system. This means ensuring they have a sustainable transportation system, characterized by safety and security, efficiency, and environmental responsibility.

Serving Canadians from coast to coast

The department employs around 4,700 people. The headquarters are in Ottawa, and there are five regional offices across Canada: Atlantic (situated in Moncton), Quebec (Montreal), Ontario (Toronto), Prairie and Northern (Winnipeg) and Pacific (Vancouver). Regional offices are vital in ensuring that the federal government's transportation policies, programs, legislation and activities respond to unique regional needs. They also deliver important Transport Canada services to Canadians.

Keeping up with the challenge of change

Since it was formed in 1936, Transport Canada has evolved considerably to meet the changing needs of Canadians. Generally, the department has moved away from the role of operator of the transportation system, towards that of regulator and policy maker.

In 2006, a new Ministerial portfolio was created that combined Transport Canada and Infrastructure Canada into Transport, Infrastructure and Communities. While the two entities remain organizationally separate to a large degree, the new portfolio brings a broader, more coordinated approach to the use of the government's policy instruments.

Safety remains an ongoing concern for Transport Canada, however, security of our transportation systems is an emerging concern of increasing importance in the current environment. The department regulates and inspects vehicles, facilities, infrastructure and administrative practices for aviation, railways and shipping to ensure that people, as well as goods and services, are transported as safely as possible. Transport Canada is also responsible for the security of the Canadian transportation system and plays a lead role in the security of the travelling public. The department has a number of regulatory responsibilities

for transportation security, which are enforced through such acts as the *Marine Transportation Security Act,* the *Aeronautics Act* and the *Railway Safety Act.*

Transport Canada has the authority to regulate for certain environmental purposes. It regulates water pollution from ships, through the *Canada Shipping Act* and the *Arctic Waters Pollution Prevention Act*. It also has legislative authority, under the *Railway Safety Act*, for regulations of emissions from the operation of Canadian railways.

As of March 29, 2004, responsibility for the Navigable Waters Protection Program was transferred from Fisheries and Oceans Canada to Transport Canada. Certain approvals under the *Navigable Waters Protection Act* trigger the need for an environmental assessment under the *Canadian Environmental Assessment Act*. Transport Canada is now responsible for ensuring that these environmental assessments are carried out and is responsible for their approval.

Transport Canada also 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 works on environmental issues with other federal government departments, such as Natural Resources Canada on the fuel efficiency of road vehicles, and with Environment Canada on air emission regulations for road vehicles.

Transport Canada is also responsible for addressing international issues in transportation, such as air and marine transport, and for setting safety standards for new vehicles. The department oversees the national/interprovincial aspects of bus and truck transportation; 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. The federal government plays a key role in creating an appropriate environment to encourage investments in transportation infrastructure that serve the national interest and enhance the quality of life in our communities.

In recent years, the department has worked to make Canada's transportation system more competitive and efficient by reducing government intervention and harmonizing regulations with other appropriate governments. 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 evolved from operator to landlord and overseer.

A shared jurisdiction

Creating a truly sustainable transportation system is challenging. In Canada, three levels of government share responsibility for transportation. In general, the federal government is responsible for national, interprovincial and international transportation; provincial and territorial governments are responsible for intraprovincial transportation; and, municipalities are responsible for urban transit, local roads and local planning decisions. Federal and provincial Ministers of Transportation coordinate activities through the Council of Ministers Responsible for Transportation and Highway Safety.

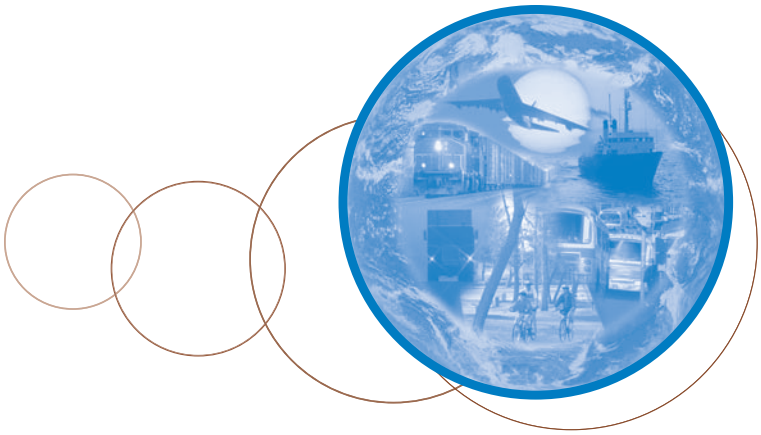
The ***federal government*** is responsible for most transportation policies, programs and goals to ensure the safety, security, efficiency and accessibility of the national transportation system. The primary responsibility for transportation rests with Transport Canada. However, there are also other federal departments, agencies and Crown corporations that play key roles in transportation issues. In addition, the Transportation Safety Board and other levels of government play important roles in maintaining the safety and security of the system nationwide.

The federal government is also largely responsible for international issues in transportation, standards for new vehicles (including national emissions standards for new on-road, off-road, and non-road vehicles and national fuel quality standards), the aviation mode, and most of the marine mode. It collaborates with foreign governments, agencies and organizations on several international safety and security initiatives. It is also responsible for national and inter-provincial/territorial aspects of rail, bus, and truck transportation. Urban transportation is not a federal responsibility per se, but many important aspects of transportation in urban areas such as ports and airports are within federal jurisdiction.

Most ***provinces/territories*** involve their departments of transportation, public works, economic development and environment, in decision-making related to transportation. The construction and maintenance of major highways, vehicle licensing and inspection, and the enforcement of traffic rules such as speed limits, fall within provincial/territorial jurisdiction. Responsibility for the local movement of goods and people within incorporated urban areas is, in many cases, delegated to municipal governments. This provides for more locally responsive delivery of services.

Local governments, municipalities, ***and regional governing bodies*** are responsible for local planning decisions within the confines of provincial legislation, such as municipal transportation, development of transportation plans, land use plans, public transit, parking fees, and the establishment of bicycle lanes. These levels of government also carry out some local enforcement responsibilities such as parking and local traffic violations. The responsibilities of municipalities vary according to the actual and potential scope of their actions related to sustainable transportation, in part because the degree of delegation by provincial governments varies and, because of size. Larger municipalities generally have more scope for action than smaller municipalities, because it is usually more feasible for them to operate effective public transportation systems. Local governments are responsible for land use planning, which in turn influences the transportation modes required to serve the resulting development.

Given the nature of sustainable transportation issues, shared jurisdiction, and the range of private and public sector stakeholders involved in the transportation sector, working together is essential to finding the best path for Canada.



Part 3:

SUSTAINABLE DEVELOPMENT AND TRANSPORT CANADA

To preserve and strengthen Canada's transportation system and advance Canadians' quality of life, transportation policy must provide a framework that addresses the three elements of sustainable transportation – social, economic and environmental. It must also give carriers and infrastructure providers the opportunity to adapt, innovate, compete, and serve shippers and travellers in a way that takes into account each of these elements. Finding the right balance among these three elements is the fundamental policy challenge.

Our vision

Our vision of a sustainable transportation system - one that integrates and finds the right balance among social, economic and environmental objectives - is guided by the following principles:

- Highest practicable safety and security of life and property - guided by performance-based standards and regulations when necessary;
- Efficient movement of people and goods to support economic prosperity and a sustainable quality of life - based on competitive markets and targeted use of regulation and government funding; and,
- Respect for the environmental legacy for future generations of Canadians - guided by environmental assessment and planning processes in transportation decisions and selective use of regulation and government funding.

Strategic outcomes

Following from our vision, Transport Canada is committed to delivering results to Canadians in three key areas as described in the department's *Report on Plans and Priorities*.

- **A safe and secure transportation system that contributes to Canada's social development and security objectives**

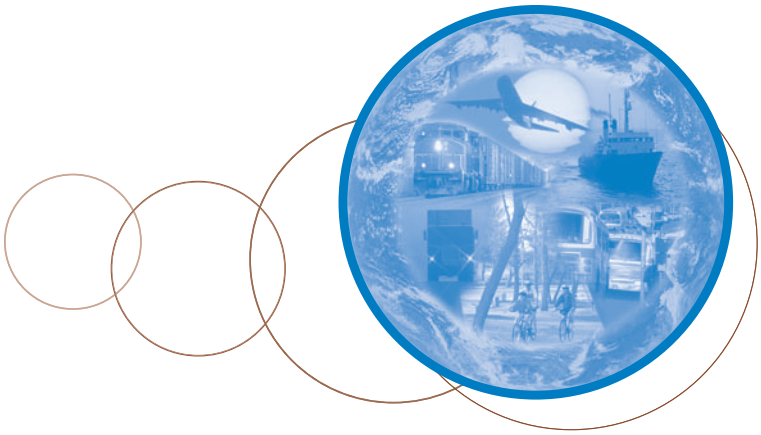
Transport Canada promotes the safety and security of Canada's transportation system consisting of the air, marine, rail, and road modes of transportation. A safe and secure system protects people from acts of terrorism, accidents and exposure to dangerous goods, enables the efficient flow of people and goods, and protects the environment from pollution. It is an essential element for a healthy population, a high quality of life and a prosperous economy.

- **An efficient transportation system that contributes to Canada's economic growth and trade objectives**

An efficient transportation system is essential to Canada's economic growth and social development. It directly contributes to Canada's international competitiveness, productivity, and overall quality of life in urban, rural and remote areas. Given the constantly accelerating pace of global trade, the profound connections among transportation, nation-building and prosperity that informed the transportation decisions of previous generations of Canadian leaders have again assumed pre-eminence.

- **An environmentally responsible transportation system that contributes to Canada's sustainable development objectives**

Although transportation provides many economic and social benefits, the movement of people and goods can have significant environmental consequences, which in turn have social and economic repercussions. Effective sustainable transportation decision-making necessitates that the environment be considered alongside economic and social factors. Environmental impacts from transportation include air, water and noise pollution, greenhouse gas emissions, and the loss of agricultural land and wildlife habitat. These stresses are caused by various transportation activities, including: construction of infrastructure; airport and port operation; road system operation and maintenance; production, operation, maintenance and disposal of vehicles; and consumption of energy.



Part 4:

KEY ISSUES IN TRANSPORTATION AND THEMES FOR 2007-2009

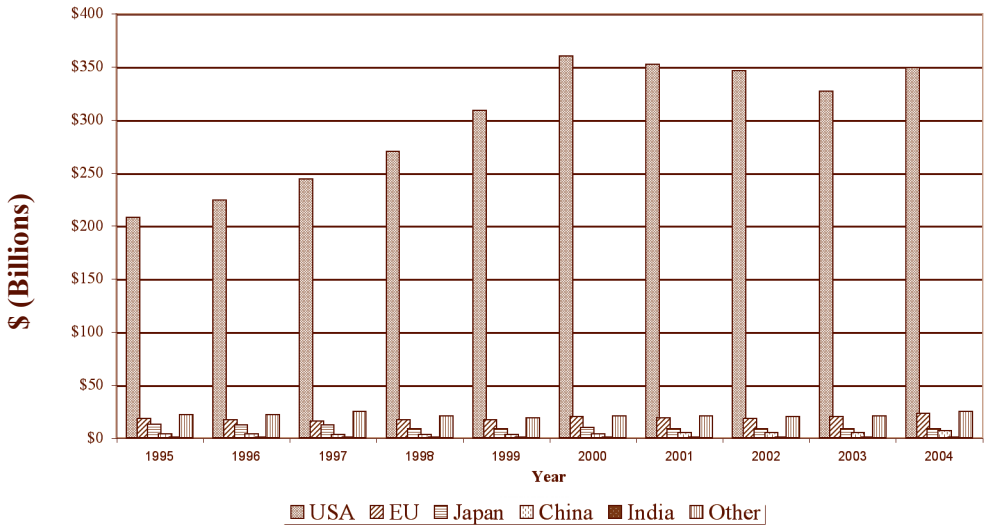
Transportation takes place within a complex web of human and physical interactions and conditions. Characteristics and broad trends in the environment, the economy and society affect the nature and scale of transportation activity, the impacts of that activity and our potential responses to those impacts. The nature and volume of trade drives the demand for freight transportation. Similarly, the size of the population, its habits, income levels and land use patterns directly or indirectly affect passenger travel.

Trade and globalization

Canada is a trading nation in an age of globalization. Its economy is increasingly integrated with those of our major trading partners and the long-term trend indicates increasing trade in both merchandise and services. Consequently, we rely on the safe, secure and efficient movement of people and goods to support our economy. Globalization creates new opportunities for transportation users and providers. It also highlights the need for a broader definition of the competitive business environment, greater harmonization of standards, and smart regulations.

Although 2001 saw a slowdown in the world economy and a reduction in trade, 2004 saw the strongest growth in more than a decade, and the long-term trend indicates ever-increasing trade in both merchandise and services. Canada's international trade is dominated by trade with the U.S. (Figure 4.1); however, over the 2002–2004 period, the largest percentage growth in Canadian exports has been experienced in trade with China (27.5%), the European Union (13.0%), and India (12.5%). Exports to the U.S. grew at approximately 0.6% over the same period, however, due to the sheer magnitude of Canada-U.S. trade, a small percentage growth in trade still reflects a significant dollar value.

Figure 4.1: Destination of Canadian Exports



Source: Adapted from Industry Canada, 2005

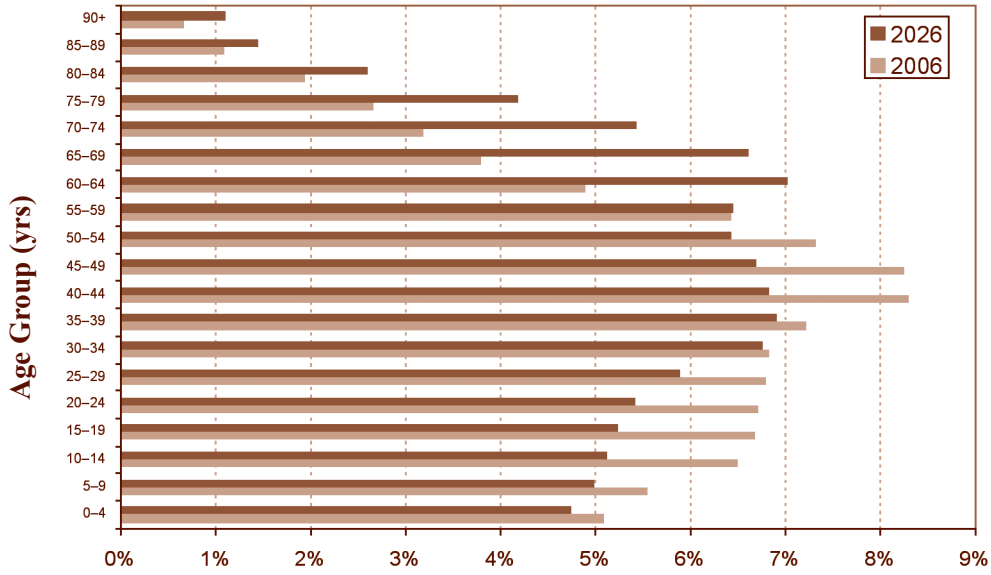
Importance of transportation to economic activity

- The Canadian transportation system carries more than $1 trillion worth of goods every year.
- Investment in transportation accounted for 2.8 per cent of Canada's GDP in 2005.
- In 2004/2005, governments spent $15.7 billion on roads and $2.7 billion on public transit services. Federal and provincial governments spent $2.4 billion on air, marine and rail transportation.
- In 2004, Canadians spent $107.1 billion on personal transportation. On average, transportation represents 14.8 per cent of the total personal expenditures of Canadians.
- In 2005, transportation prices rose 4.1 per cent as gasoline prices increased by 12.8 per cent.
- Tourism expenditures, including expenditures on transportation, were up in 2005. Air transportation expenditures rose 13.5 per cent. Both interprovincial and intraprovincial domestic travel were up in 2005.
- In 2005, more than 860,000 people held jobs in the transportation industry or related functions, representing just over 5 per cent of the Canadian workforce.

Population change

Canada's population is aging (Figure 4.2) and this will affect the demand for transportation. In particular, retiring baby boomers are likely to have new and different travel needs, including destination (leisure vs. commuting), choice of mode, and demands for physical access. At the same time, the 1990s showed increasing numbers of immigrants arriving in Canada, and this trend continues. New immigrants are major contributors to the growth of cities, and this preference is another factor in the ongoing urbanization of Canada, with its associated challenges for urban transportation.

Figure 4.2: Canadian Population by Age Segment



Source: Statistics Canada, 2001

Transportation activity

Canada's size and dependence on international trade make transportation very important to Canadians. Transportation – by land, water and air – links Canadians to each other and Canada with the world. Transportation moves goods to markets and people to their destinations, provides jobs and supports economic growth. Canada has a well-developed transportation system, with large investments in infrastructure, vehicles and fuel distribution networks.

Many of the social impacts of transportation are positive (e.g., mobility and human contact). However, there are social issues associated with lack of access, availability and unintended effects of the operation of the transportation system.

Transportation has a wide range of impacts on the environment including resource use (materials and energy), undesirable residuals (emissions, spills and leaks), and land use, including impacts on wildlife. Some of the transportation activities that contribute to these impacts are: the construction of infrastructure; road system operation and maintenance; the production, operation, maintenance and disposal of vehicles; and the provision of energy and fuel.

Transportation safety and security

Citizens of developed nations once took for granted the benefits of transportation systems. Terrorism, however, has challenged this sense of comfort. Many of the major terrorist attacks of the last 30 years have been linked to transportation. Recent attacks have reminded citizens about the role of transportation in their lives and raised their expectations that governments are acting in a coordinated, integrated and strategic fashion in order to keep transportation systems and border crossings secure and efficient. Since September 11, 2001, the overwhelming priority for governments has been to improve the security of the transportation system, while maintaining traditional objectives of safety. In Canada's case, the need for security has grown because of our proximity with the U.S., our dependence on U.S. trade and our desire for a smooth and integrated transportation system across the border.

A fundamental role of the federal government is to help ensure the safety and security of the nation's citizens. In March 2002, the Government of Canada established the Canadian Air Transport Security Authority (CATSA), which assumed responsibility for the provision of key aviation

security services. In 2004, the Government issued its first-ever comprehensive National Security Policy statement outlining an integrated security system and co-ordinated approach to prevent and respond to security threats. Following terrorist attacks in Madrid in 2004 and in London in July 2005, the department also expanded a rail information-sharing network to include major urban transit authorities. In addition, funding is being provided through a two-year contribution agreement to enhance security in higher risk areas of high-volume passenger rail, urban transit and ferry operations. Transport Canada is also reviewing longer-term passenger rail and transit security needs in partnership with Public Safety and Emergency Preparedness Canada and in collaboration with the many partners in this sector. As well, in order to take a more comprehensive approach to security, the department is developing a longer-term multi-modal strategic security framework for Canada's transportation system.

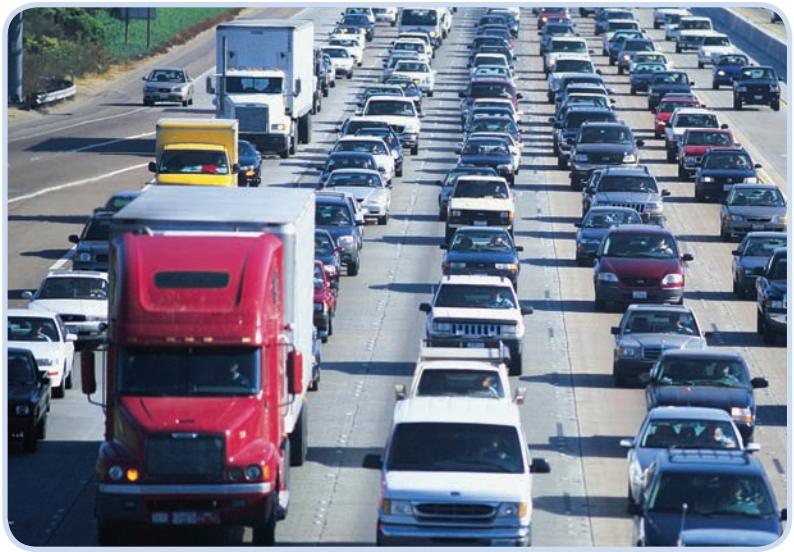
In addition to security concerns, the emergence of severe acute respiratory syndrome (SARS) in early 2003 has increased global awareness of health safety as it pertains to international air travel and disease control.

Key themes for 2007-2009

The Commissioner of the Environment and Sustainable Development has recommended that departments use sustainable development tools strategically in order to focus and concentrate efforts on specific areas and a smaller number of commitments, where departments can make a difference. In response to this, the goals in developing this SDS were to streamline the process and to focus on a smaller number of issues where the department can make a significant contribution, or where there are significant opportunities. The department selected three themes at the heart of sustainable transportation in order to focus its efforts: urban transportation; commercial freight transportation; and marine transportation. These theme areas were used as the basis for the development of issue papers and for expert workshops, which served as the department's SDS consultations (see Appendix A). The following section will describe the issues surrounding these three themes and will highlight the commitments that Transport Canada has made in response to the challenges that they present. While these themes have served to focus this fourth SDS, there are a number of other important sustainable development issues that will also be addressed and are highlighted towards the end of this section.

Urban transportation

The challenge of achieving sustainable urban transportation is an important priority as presently, over eighty per cent of Canadians reside in urban areas, while the remaining twenty per cent are generally dependant on cities. Given this concentration in urban areas, a transportation system that is efficient, safe, secure and environmentally responsible remains an integral component of sustainable communities. Although the rapid rate of urban growth has provided considerable economic and development opportunities with respect to an increase in employment, neighbourhoods and physical structures, the effects remain quite significant.

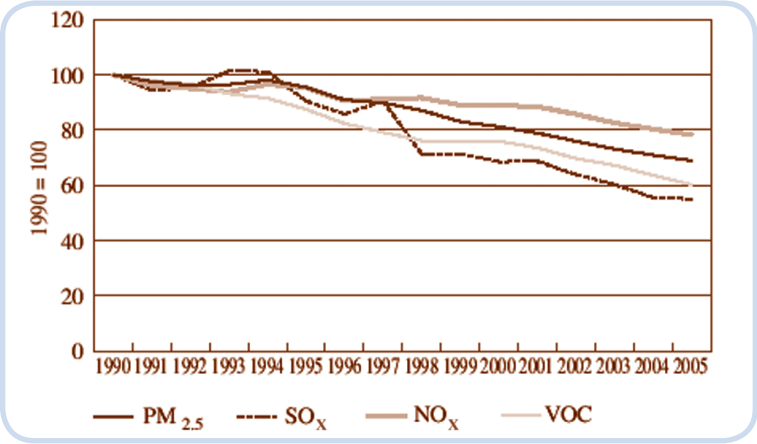


Transportation safety and security is an essential requirement for a healthy population, a high quality of life and a prosperous economy. The department's challenge is to find innovative and cost-effective ways to identify and mitigate safety and security risks in the transportation system without harming the environment or hindering economic growth.

The majority of transportation-related air emissions results from the activities within urban centres. Poor air quality is a growing dilemma as there are numerous social, economic and environmental impacts that accompany it. Urban smog is one of the most visible forms of pollution and this is a large concern for Canadians. One cause of air pollution and smog is congestion, which is a major challenge for some urban areas. Congestion is evidence of social and economic vitality but is associated with undesirable impacts. Economic costs include lost time and productivity, lost wages, and extra fuel costs. Environmental costs include increased emissions of greenhouse gases and air pollutants. Social costs include stress and accidents. The outward signs can be seen in the slowdowns and bottlenecks on our highways and city roads. A recent study, sponsored by Transport Canada, estimated that the annual cost of recurrent congestion in Canada's nine largest cities reaches $3.7 billion. Low-density settlements, with their reliance on roads, are an important factor in the development of Canadian cities. Although there are benefits of a less crowded, open, green environment, low-density development impedes the ability of city-dwellers to engage in active transportation (e.g., walking and cycling to reach workplaces and services), contributes to congestion, and fragments the community by imposing streets and boulevards as borders between residential blocks, commercial centres and work opportunities. This fragmentation further increases time demands and may contribute to a reduced sense of community cohesion and greater family isolation.

In many of Canada's most densely populated centres, smog is a major health concern. The two main ingredients in smog that affect health are fine airborne particles and ground-level ozone, which is composed primarily of nitrogen oxides (NO_X) and volatile organic compounds (VOC). In 2001-2003, one in every two Canadians lived in communities with ozone levels above the Canada-wide Standards (CWS) for ozone. In 2002, transportation accounted for about 53 per cent of all NO_X emissions, 59 per cent of carbon monoxide, 24 per cent of VOCs, 3 per cent of sulphur oxides, and 5 per cent of particulate matter ($PM_{2.5}$) – the major constituents of urban smog. On the positive side, since 1990, the trend in all of these emissions has been downward (see figure 4.3), largely due to regulatory changes introduced by the federal government to reduce the health impacts of smog and the impacts of acid rain.

Figure 4.3: Air Pollution Emissions from the Transportation Sector, 1990–2005



Source: Environment Canada: 2002 Criteria Air contaminant Inventory, Preliminary Estimates

Health studies estimate that air pollution contributes to more than 5,000 premature deaths in Canada each year, as well as to numerous health-related problems. Among those are cardiovascular ailments and respiratory distress, resulting in increased emergency hospital visits and hospital admissions. In addition, excessive use of motorized transportation instead of active transportation options contributes to reduced physical activity and concurrent health problems (obesity,

heart disease). Children are exposed to many of the same types of health risks as adults, including respiratory ailments from air pollution and safety risks as passengers and pedestrians. One reason fewer children walk to school is safety concerns related to motorized traffic. Despite these impacts, it is clear Canadians value their mobility and have a tendency to rely on personal vehicles as primary means of transportation. In the campaign to reduce air pollution and congestion, the need to manage transportation demand is becoming increasingly important.

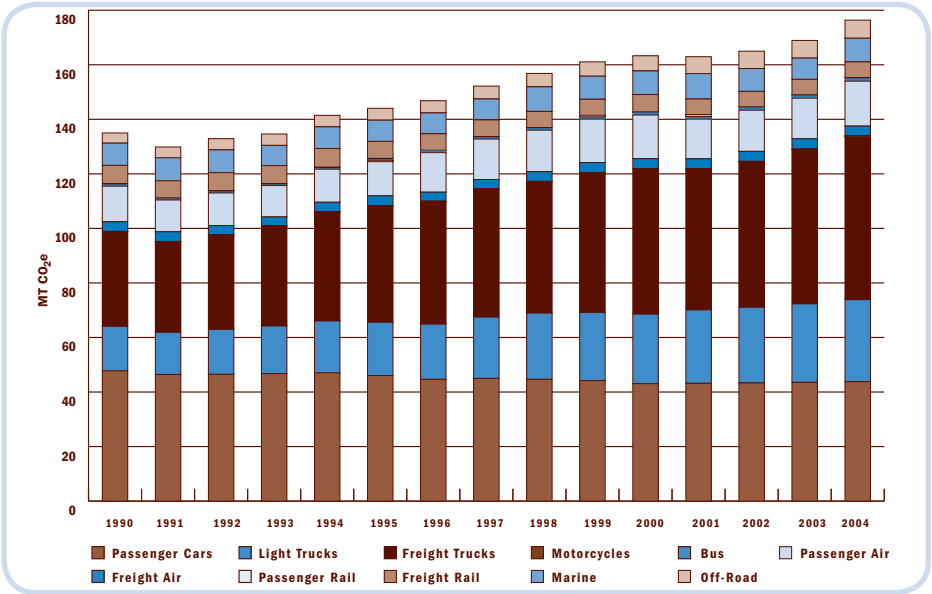
Alternatives to single occupant vehicles, such as transit, carpooling and active transportation are important solutions but are ones which require changes in policies, behaviour and lifestyle. This points to the need for ensuring good public transit systems and infrastructure for active transportation. Other options, such as fuel-efficient and advanced technology vehicles are important factors in demonstrating sustainable urban transportation. Canadians are increasingly interested in such options in order to reduce their personal environmental footprint and to save money at the gas pumps.

The terrorist attacks in Madrid in 2004 and in London in July 2005 were poignant reminders of the vulnerability of rail, urban transit and bus systems worldwide. Rail and urban transit operators are integral to Canadian communities and their transportation systems. Transport Canada has been working with rail and urban transit operators to address immediate security needs by providing federal contribution funding to implement new and enhanced security measures. In addition, the department is providing leadership in supporting the adoption by rail and urban transit operators of relevant national and international best practices and guidelines for security enhancements.

Greenhouse gas emissions reduction remains a challenge for Canada and the transportation sector in particular. In 2004, about 25 per cent of greenhouse gas (GHG) emissions in Canada came from the transportation sector, about two-thirds of which are generated in urban areas. Figure 4.4 shows the rising trend in transportation GHG emissions by mode between 1990-2004.

In order to address the impacts of a rapidly growing urban transportation sector, an improvement in

Figure 4.4: Transportation Direct and Indirect GHG Emissions By Mode – 1990-2004



Source: Natural Resources Canada, Energy Efficiency Trends Analysis Tables, 1990 to 2004.

the collection, dissemination and analysis of transportation data and information is required. There are shortcomings with respect to the availability of data and performance measures across all modes, which impedes the ability of government to make informed decisions and reduce environmental impacts in urban areas.

Source: City of Whitehorse

Influencing the transportation choices Canadians make through initiatives that support greater awareness and knowledge transfer is a key way in which the government can make significant reductions in transportation emissions, demand on infrastructure, and enhancing the health of Canadians through alternative and active modal choices.

Within the *Sustainable Development Strategy 2007-2009*, Transport Canada has included a number of important commitments that support sustainable development in the urban transportation sphere.

An important component of Transport Canada's plan for promoting sustainable urban transportation includes efforts that influence transportation demand and choices.

- In 2007/2008, Transport Canada will undertake to **support and encourage the uptake of Commuter Options** within federal departments and agencies through programs and policies to encourage sustainable transportation.

- To help address the need for a reduction in air emissions, congestion and the reliance on personalized motor vehicles, Transport Canada will **explore the need for a national active transportation strategy** by 2009/2010. This strategy would provide the information, guidelines, benchmarks, and programs to assist provincial and municipal government efforts to encourage more active transportation in urban areas, with a particular emphasis on walking and cycling.

- Transport Canada will also **facilitate the expanded application of transportation demand management** (TDM – see glossary for a definition) approaches. It will support the development of case studies, learning events, a website, recognition programs and other information products. These initiatives will enhance capacity to implement and measure the effectiveness of sustainable, integrated, urban passenger transportation projects and policies. This work is intended to help facilitate the replication of successful practices by 2009/2010.

- Efforts to promote a more efficient and environmentally sustainable transportation system require a sound understanding of how potential measures (e.g., infrastructure investments, regulatory or tax changes) are going to affect demand for each mode. This, in turn, requires a good understanding of how shippers and passengers make modal choice decisions. Transport Canada will **complete a study of the Quebec City – Windsor Corridor** by 2008/2009, with the goal of building a better understanding of modal choices in Canada's busiest transportation corridor. This will involve developing models to analyze the impact of potential policy decisions on freight and passenger modal choice decisions in the Quebec-Windsor Corridor.

Efforts to affect demand and encourage sustainable choices are important. However, to be even more effective, it is imperative to also couple this with initiatives aimed at improving and/or promoting vehicles, technology and fuel efficiency.

- To help address the need to encourage alternative and fuel-efficient vehicles, Transport Canada will work with partners to **explore the use of market incentives to increase the production and purchase of environmentally friendly motor vehicles** on an ongoing basis between 2007/2008 and 2009/2010.

- Transport Canada will also continue to **promote advanced technology vehicles.** On an annual basis, Transport Canada will evaluate advanced technology vehicles, conduct tests, inspections, evaluations and reports detailing the ability of advanced technology vehicles to comply with existing regulatory requirements and encourage manufacturers to accelerate the introduction of such vehicles in Canada.

- Related to fuel consumption of motor vehicles, Transport Canada will **track fuel consumption of motor vehicles sold in Canada**, support government objectives for improved fuel consumption and GHG emissions and generate consumer information to improve vehicle choices. On October 19, 2006, the Government of Canada tabled the Clean Air Bill in Parliament which amends the *Motor Vehicle Fuel Consumption Standards Act* to modernize the Government of Canada's authority to regulate new vehicle fuel consumption. **Regulations on fuel consumption of road motor vehicles under the *Motor Vehicle Fuel Consumption Standards Act* will be developed for the model year 2011**. This will follow the expiry of the voluntary agreement between industry and the government to achieve a 5.3 megatonne reduction in greenhouse gas emissions from motor vehicles in Canada in 2010.

- The department will also continue to **support the research, development and deployment of Intelligent Transportation Systems** (ITS – defined on page 65), throughout the 2007/2008–2009/2010 period. This will lead to further system integration and will help promote greater efficiency, safety, security and sustainability of the transportation system.

- Critical to any sustainable transportation plan are efforts to maintain and improve transportation infrastructure. In fact, the government has provided significant investment to ensure the sustainability of Canada's infrastructure, supporting its long-term prosperity. Over the 2007/2008–2009/2010 period, Transport Canada will continue to **support sustainable transportation objectives (e.g. greenhouse gas reduction, economic and social benefits to communities) through selection due diligence criteria and project performance indicators under the department's current and upcoming infrastructure programs**.

- Finally, with respect to the need to address shortcomings in data and information, Transport Canada will continue to **lead a centralized effort to organize and improve the collection, dissemination and analysis of sustainable transportation information in all modes.** This will include the development of new data and analytical tools to improve decision-making. The department will work with partners, including Statistics Canada to improve data collection with respect to road vehicle use. Furthermore, Transport Canada proposes to **amend the *Canada Transportation Act* provisions on data collection** to ensure the availability of consistent, useful information on various elements of the transportation system.

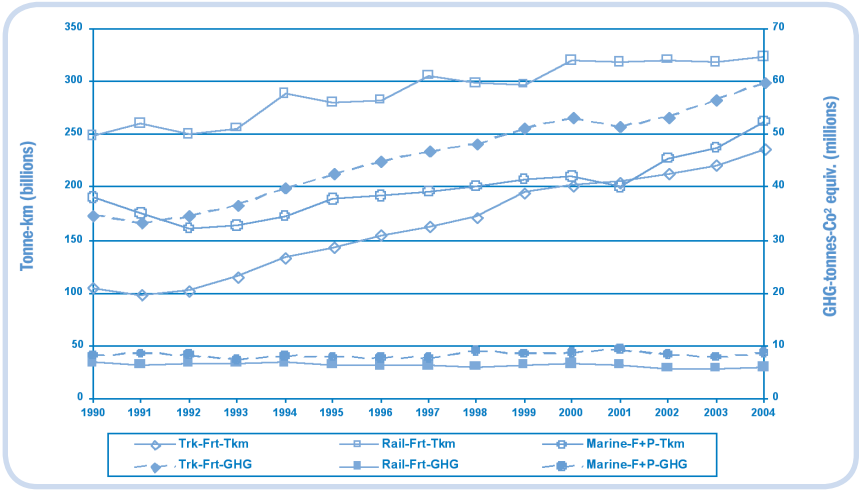
Transport Canada has adopted a long-term outlook to approach the many factors that influence the sustainability of Canada's urban transportation system. These commitments will contribute towards reducing the impacts of urban

transportation including, among other things, air pollution and congestion, while contributing towards improving social cohesion and the livability of Canadian cities and communities.

Commercial freight transportation

Freight transportation makes a significant contribution to the Canadian economy both in terms of its actual share of economic activity, and through the enabling role that it plays in moving products to market. Growth in trade and changes in patterns of freight activity, such as just-in-time delivery models, are leading to significant increases in activity in all modes. 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 4.5: Freight mode activity and emissions trends 1990-2004



Source: Natural Resources Canada, Energy Efficiency Trends Analysis Tables, 1990 to 2004

Freight transportation also has significant social and environmental impacts that need to be addressed. The transportation sector is the largest single contributor to GHG emissions, and freight transportation accounts for approximately 43 per cent of transportation GHG emissions. Emissions from freight transportation are growing at a faster rate than those of passenger transportation. Between 1990 and 2004, GHG emissions related to passenger transportation grew at an annual rate of 1.1 per cent while freight emissions grew at a rate of 3.0 per cent. In addition, freight emissions in 2004 were 50.6 per cent higher than in 1990. If these trends continue, GHG emissions from freight transportation could exceed 1990 levels by 67 per cent in 2010 and 116 per cent by 2020. During the period of 1990 to 2004, truck share of freight GHG emissions increased from around 69 per cent to 79.4 per cent, although it should be noted that while the number of trucks on the road have increased, there have been improvements to their efficiency. In 2004, the remaining contributors were: domestic marine (which includes passenger) at 11.5 per cent of transportation GHG emissions, rail at 7.7 per cent and air freight at 1.4 per cent. Clearly, reducing GHG emissions in the freight transportation sector presents an important challenge for Canada.

Freight transportation also contributes to congestion both in urban areas and at border points. Congestion at border points presents a special problem. Canadian imports and exports, especially to and from the United States, demand reliable and timely traffic flows at border points, as well as through trade corridors. In 2005, almost 76 per cent of Canada–U.S. trade (in value terms) carried by trucks took place at six border crossing points: Windsor/Ambassador Bridge, Fort Erie, Sarnia, and Lansdowne in Ontario, Lacolle in Quebec, and Pacific Highway in British Columbia. The reality of today's need for increased security measures also has an impact on how quickly goods and people can move across borders and at international airports. Congestion, as described earlier, has far reaching impacts at the social, economic and environmental level. This leads to significant increases in travel times with a resulting decrease in leisure time, increases in the emissions of air

pollutants which has significant impacts on human and ecosystem health, increases fuel costs, and inefficiencies in the transportation system, all of which influence the Canadian economy.

Other issues that are relevant for the freight transportation sector are air pollution, noise pollution, and accidents. Air and noise pollution, especially in urban areas, decrease Canadians' quality of life and contribute to health problems. Accidents can cause injury and loss of life as well as create potentially harmful leaks and spills.

In addition, freight transportation is responsible for a good portion of the wear and tear of Canada's transportation infrastructure. There are significant challenges associated with transportation capacity to meet ever-increasing trade growth. Particular attention is needed to ensure that gateways and trade corridors are efficient, allowing goods to reach their destinations seamlessly and in line with our sustainability goals.

Transportation is a derived demand which responds to economic growth, therefore the above-mentioned effects must be mitigated without restricting activity that is essential to the quality of life of Canadians. A system-wide perspective that addresses the effects of all modes in the freight system is needed to mitigate emissions from the freight sector. The removal of barriers to innovation and the adoption of technology in the freight transportation system are important to achieving sustainable freight transportation. Partnerships, with provinces and territories as well as industry, are also key. A major barrier with respect to addressing many of these issues is a lack of data and performance measurement. In particular, there are significant gaps in truck data that need to be filled in order to clearly assess the opportunities for efficiency improvement and the possible impacts on carriers and shippers.

In the *Sustainable Development Strategy 2007- 2009*, Transport Canada has made a number of important commitments to sustainable development in the freight sector. Many of the initiatives that Transport Canada will undertake related to freight transportation will also be undertaken within an urban context and are therefore cross-cutting with the department's urban transportation initiatives.

- As mentioned on pages 15-16, Transport Canada will **continue to support Intelligent Transportation Systems** and **as part of federal investments in infrastructure, Transport Canada will continue to promote best practices**, including supporting sustainable transportation objectives through project selection due diligence criteria and project performance indicators through the department's infrastructure programs. Transport Canada will also **complete a study of the Quebec City – Windsor Corridor** by 2008/2009, which will increase understanding of modal choices in this corridor and will greatly assist with analysis of freight and passenger transportation policy options.

- Transport Canada's commitment to improving transportation data and information introduced in the urban transportation section is another important cross-cutting initiative. Transport Canada will work to **improve the collection,**

dissemination and analysis of sustainable transportation information in all modes, on an ongoing basis. This will include efforts to improve data collection with respect to truck freight. The **amendment of the *Canada Transportation Act* provisions on data collection** will ensure availability of consistent, useful information on various elements of the transportation system.

- In addition, Transport Canada will work to increase its understanding of the full cost implications of the use of different modes of transportation. In 2006/2007 and 2007/2008,Transport Canada will conduct a number of studies and research projects to help **fill analytical gaps and contribute to a national perspective on key sustainable transportation issues.**

An essential element for ensuring sustainable freight transportation is related to reducing emissions.

- Beginning in 2007/2008, Transport Canada will draw upon available resources to **maintain and build strategic partnerships to coordinate efforts to reduce emissions in all modes including rail, aviation and marine freight transportation.** An emphasis will be on building industry engagement and leadership for longer-term change, and in establishing targets and action plans that can offer a fast, flexible and cost-effective path to emission reductions within a broader regulatory framework. Transport Canada will also **work with governments and transportation stakeholders to identify technological and operational opportunities to mitigate environmental impacts from transportation activities.**

- In addition, Transport Canada and Environment Canada will **support a Memorandum of Understanding that has been negotiated with the Railway Association of Canada** that ensures that the rail industry reduces its emissions of air pollutants consistent with the United States Environmental Protection Agency (EPA) air pollutant standards and continues to improve its GHG emissions performance between 2006 and 2010. Transport Canada will **develop**

and implement new regulations under the *Railway Safety Act* to take effect in 2011.

These commitments will play a part in achieving the long-term goals of improved air quality and reduced GHGs, reduced congestion, and improved human and ecosystem health. Partnerships within the federal government and with the provinces and territories as well as industry will be key in achieving our long-term goals.

Marine transportation

Marine transportation is critical to Canada's economy and the movement of goods by sea is becoming increasingly important as trade with China and the Pacific Rim continues to grow rapidly. Marine transportation has unique characteristics in terms of the structure of the industry itself and in the actual movement of goods and people. A dominant feature of marine transportation is its international dimension, which shapes the policy, regulatory and competitive environment. These conditions create the need for largely international governance of marine issues, in marine safety and environmental issues in particular, which is done mainly through the International Maritime Organization.

Canadian marine transportation services are characterized by a clear division between international (deep sea) services, provided almost exclusively by foreign flag shipping, and domestic and transborder shipping services provided predominantly by Canadian flag vessels. While there are important passenger services in the form of ferries and cruise ship activities, the dominant role of the marine transportation industry and support infrastructure is the carriage of goods.

The large amount of goods that can be carried aboard a single vessel can offer fuel efficiencies over truck and rail modes, which lead to environmental benefits. Despite the lack of visibility to ordinary Canadians, the movement of goods by sea carries with it a whole range of environmental consequences. In general, marine transportation has quite different environmental impacts than other modes of transport. Oil spills in the marine environment through accidental discharges are prominent in the public eye when they occur, and have immediate and obvious negative consequences for the environment and the health of local inhabitants. Water-borne spills of hazardous and noxious substances (HNS) can also cause serious damage to human health and the environment. The high volume of HNS carried by sea-going vessels, particularly in our international trade, highlights the potential for a major chemical spill occurring in Canadian waters. Marine transportation is responsible for 41 per cent of transportation-related sulphur oxides emissions, a component of acid rain. In port cities such as Vancouver, marine related activity is a key source of air pollution. Moreover, the major sources of transportation-related water pollution are spills of oily wastes and releases of invasive species in ballast water (see page 64 for a definition of ballast water).

With respect to environmental sustainability challenges related to shipping, there are two broad categories: those relating to ship emissions (both air and water), and those relating to the presence of the ship itself. Ship emission challenges relate to discharges from vessels, and the associated need to establish acceptable conditions for such discharges (i.e. amounts, location, etc.). Environmental risks posed by the presence of the ship itself include, for example, propeller action (e.g., risk to whales), ships' wash problems or icebreaking activities.

Another concern which has gained significant public recognition in recent years is the threat of invasive species being transported and released through ships' ballast water. The consequences of the introduction of alien species into an ecosystem are serious and irreversible. In addition to ballast water, waste management is another important issue for the marine sector, particularly related to the adequacy of waste reception facilities.

Air pollution from ships is of growing concern, especially in port cities, which is a substantial health concern for large numbers of people. Standards for air emissions are set internationally and regulated through Annex VI of MARPOL. The annex imposes controls on NO_X and SO_X emissions as well as on ozone-depleting substances. However, there are some concerns

associated with these standards, particularly in that they only apply to new diesel engines. Since marine fleet turnover is slow, many ships have been grandfathered and could still be operating in 20 to 40 years.

In addition, there are shortcomings in the availability of data and information that seriously impede analysis of marine transportation options and the measurement of performance. Sustainable development issues in marine transportation cross a number of jurisdictions and involve many players. In order to promote sustainable development in the marine sector, Transport Canada must work with other federal departments, other levels of government, industry, labour groups, academia, the international community and other stakeholders.

In the *Sustainable Development Strategy 2007-2009*, Transport Canada has made a number of important commitments to sustainable development in the marine sector.

- In 2007/2008 – 2009/2010, Transport Canada will continue to **explore opportunities for shortsea shipping** (see page 66 for a definition of shortsea shipping) as a means to improve utilization of waterway capacity, strengthen intermodalism, facilitate trade, reduce greenhouse gas emissions, and to improve the overall performance of the transportation system. This will include fostering a nationally integrated approach to shortsea shipping as well as working internationally with the United States and Mexico.

- Transport Canada will work with partners to promote best practices for environmental management and corporate responsibility in the transportation sector. In 2007/2008, Transport Canada will **advance the prospects of an environmental incentive program in the marine sector**, by investigating and developing the business case for the key players, including interested ports.

- To promote sustainable development and reduce pollution in the marine sector, by 2009/2010, Transport Canada will undertake:
  - a further examination of **Sulphur Emission Control Areas (SECA)**;
  - a program of research and development directed at identifying further **improvements in ballast water management;**
  - the design and implementation of an effective **national accident prevention and response regime for hazardous and noxious substances,** sufficient for Canada to meet its obligations under the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC Convention) and the Hazardous and Noxious Substances (HNS) Protocol (OPRC-HNS Protocol);
  - the **improvement of ship waste management** by designing and implementing a comprehensive national plan for the provision, operation and regulation of port waste reception facilities; and
  - the **improvement of aerial surveillance** to monitor marine pollution.

- With respect to data and information, as mentioned above in relation to urban and freight transportation, over the span of this strategy, Transport Canada will make important strides in **improving the collection, dissemination and analysis of sustainable transportation information in all modes.**

Like urban and freight transportation, influencing sustainable development in the marine sector is a long-term goal, one which will require incremental efforts over time to achieve. The above-mentioned commitments will contribute towards long-term outcomes of improved air quality and reduced GHGs, improved water quality, and the preservation of ecosystems and biodiversity. At the same time our efforts will maintain or improve safety standards and the competitiveness of Canada's transportation system.

Other sustainable development issues

There are many sustainable development issues in Canada that cross cut through and beyond the transportation sector. These issues, although sometimes not obvious, are important to Canadians and underlie Transport Canada's ability to achieve sustainable development. Skills development in the transportation sector, accessibility of the national transportation system, climate change impacts and adaptation and the management of Transport Canada operations and lands are all important components of the department's Sustainable Development Strategy. These issues, however diverse, are all vital to Transport Canada's results chain for a sustainable transportation system in Canada. Transport Canada's aim is to positively influence these issues through commitments made in our *Sustainable Development Strategy 2007-2009*.

A highly skilled workforce is necessary to the continued efficiency and sustainability of the Canadian transportation system. Transport Canada is committed to acting as a catalyst for transportation skills development to increase capacity and to support the development of partnerships between government, industry, and academia. Our challenge is to identify skills development shortages, and to work with other stakeholders to address these issues.

- In 2007–2009, Transport Canada will undertake specific initiatives to **encourage Canadians to consider careers in transportation,** and will work with stakeholders to promote the continued competitiveness of the transportation sector.

Currently, a topic that is of growing concern to Canadians is climate change and its potentially serious impacts on Canada's transportation system, which could in turn disrupt the flow of people and goods. Although causes and impacts transcend political boundaries, and effects may not be obvious or immediate, Transport Canada is taking precautionary action. The department will work with other departments and relevant stakeholders to further our understanding of adaptation measures that will support and enhance the sustainability of Canada's transportation system.

- In particular, beginning in 2006/2007, Transport Canada's Quebec Region will **undertake a study of the permafrost and the thermal regime of the landing strip at Kuujjuaq Airport.** The long-term goal of this study is to identify adaptation measures before climate change impacts occur and to better manage the maintenance of the landing strip.

An accessible transportation system is an integral component of sustainable communities. Although accessibility issues may not be apparent to all Canadians, they are becoming more visible as the population ages.

- Transport Canada will continue to work with partners including the transportation industry, seniors, and persons with disabilities on an ongoing basis to **enhance the accessibility of federally regulated modes of transport across the country.**

An internal challenge for Transport Canada is to improve the management of its operations and

lands. By adopting best practices for environmental management, Transport Canada can reduce its own environmental impacts and set an example for others in the transportation sector.

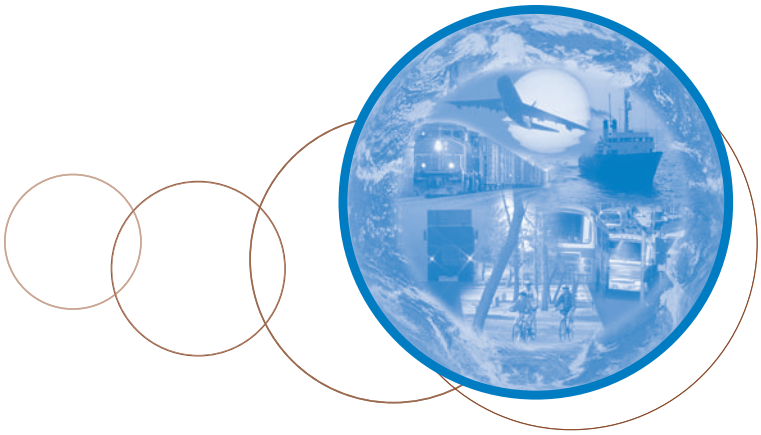
- Transport Canada is committed to **implementing its Environmental Management System (EMS)** on an ongoing basis, including new targets that focus on priority areas in the department's operations. The Department's EMS is based on the International Organization for Standardization (ISO) 14001 standard and the federal government's *Guide to Green Government*. A systematic approach to environmental management allows organizations to understand the nature of their environmental impacts and plan accordingly.

- Transport Canada has also committed to **implement selected Green Space projects** by 2009/2010 that support the Draft Green Space Master Plan and demonstrate environmental stewardship of the Pickering Green Space Lands.

A long road ahead

Influencing sustainable development in the transportation sector is a long-term goal. Our goal is to positively influence the immediate, intermediate and ultimate outcomes that have been identified within our Sustainable Development Strategy results chain. To achieve this, the incremental efforts set within our three-year strategy will strive to further Transport Canada's commitment to promoting a sustainable transportation system and to ensure that our efforts make a difference. All too often, good ideas are not realized due to a lack of resources. In an effort to address this and take a meaningful step forward in our sustainable development journey, Transport Canada has made a commitment to establish a new internal source of funding for sustainable development initiatives. In 2006/2007, Transport Canada will establish an internal sustainable development strategy fund of up to $1 million per year for the three years of the SDS for innovative projects that make significant contributions to sustainable transportation. Approved projects will be considered SDS commitments. By establishing this fund, the department will break new ground and open new doors in the hopes of making significant advancements in our sustainable development journey.

In all of these efforts, Transport Canada will ensure that our activities and success stories are communicated with the general public and our stakeholders. To this end, the department will continue to develop and deliver environment and sustainable development announcements to support the government's environmental agenda.



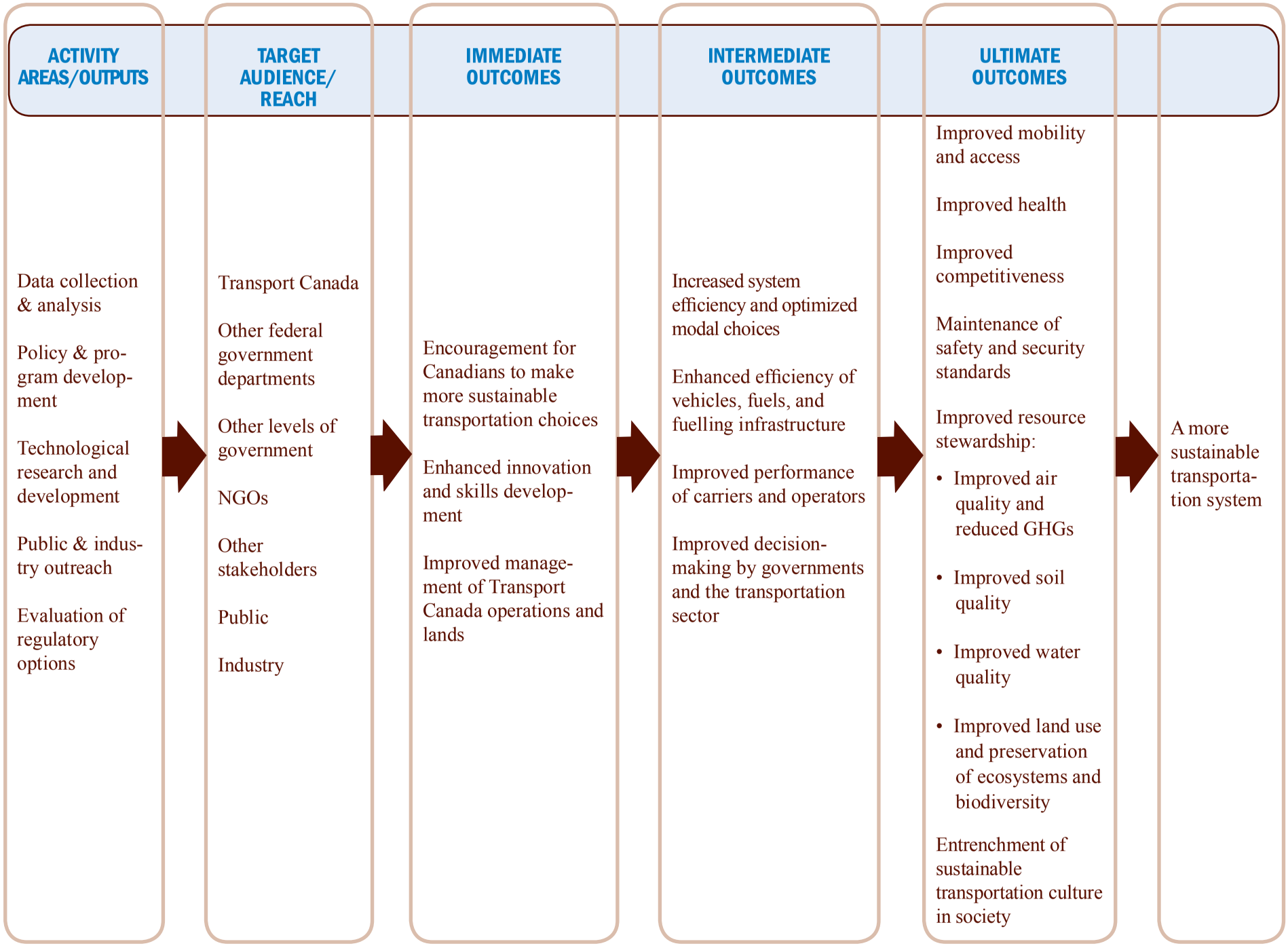
Part 5:

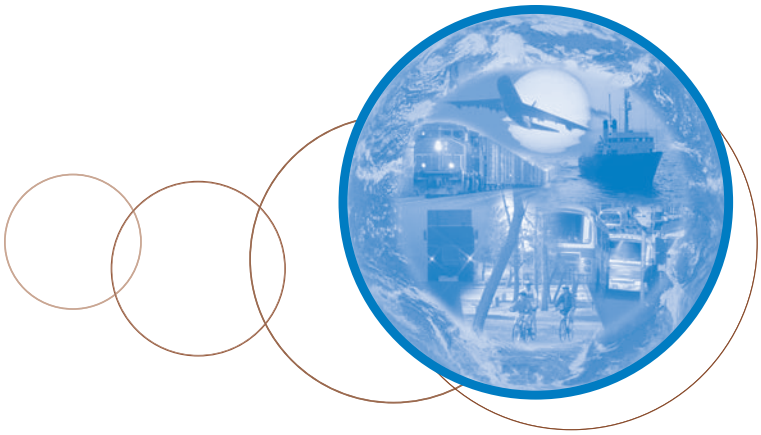
MEASURING PERFORMANCE

In 2003, Transport Canada developed a results chain (Figure 5.1), which identifies the long-term results that the department intends to influence. The first step in the results chain is the activity, as defined by individual commitments. The activity can be aimed at various audiences (e.g. Transport Canada, other government departments, non-governmental organizations, industry, and the public). The results or outcomes of the activity are defined as either immediate or intermediate, and these outcomes are the strategic challenges for the third and fourth strategies. The ultimate outcomes (e.g., improved air and water quality) and, finally, a more sustainable transportation system, depend on meeting these strategic challenges. The ultimate outcomes are long-term goals and will not be achieved in the timeframe of a single SDS. Each strategy will demonstrate incremental results towards achieving the ultimate outcomes.

There are numerous indicators that can be used to assess Canada's progress towards sustainable transportation. In order to provide a better picture of how well Canada is meeting its sustainable transportation goals, by 2009/2010, the department will develop a set of sustainable transportation indicators that will better reflect the three pillars of sustainable development (economic, social and environmental) and will provide a more balanced assessment of the state of sustainable transportation in Canada.

Figure 5.1:
Transport Canada's Sustainable Development Strategy Results Chain





Part 6:

TRANSPORT CANADA'S ACTION PLAN

Transport Canada's *Sustainable Development Strategy 2007-2009* responds to the issues identified in Part 4 while focusing on areas where the department can make a real difference towards achieving sustainable transportation. A primary goal of the SDS is to present a results-based approach to achieving the department's long-term vision for sustainable transportation.

In keeping with Transport Canada's first three sustainable development strategies, the fourth strategy is structured around a series of strategic challenges, each of which contains a number of commitments. The first strategy provided a sound foundation for integrating environmental considerations into the work of the department. In the second strategy, Transport Canada adopted a set of sustainable development principles and made specific commitments to action. The third strategy brought more precision to the concept of sustainability, and defined seven challenges and 32 specific commitments. The challenges included in this strategy have not changed from the third strategy and the department continues to place increased emphasis on the identification of specific results. In fact, the seven strategic challenges are taken directly from Transport Canada's results chain, which was developed in 2003 (see page 26).

The seven strategic challenges are:

1. Encourage Canadians to make more sustainable transportation choices.
2. Enhance innovation and skills development.
3. Increase system efficiency and optimize modal choices.
4. Enhance efficiency of vehicles, fuels and fuelling infrastructure.
5. Improve performance of carriers and operators.
6. Improve decision-making by governments and the transportation sector.
7. Improve management of Transport Canada operations and lands.

These challenges are wide-ranging and cover a large number of possible areas that Transport Canada wishes to influence in order to promote a sustainable transportation system. The three themes outlined earlier have allowed the department to better focus its efforts and to make a smaller number of meaningful commitments.

The commitments outlined in Part 4 are elaborated within an action plan, which includes specific, measurable and time bound targets and performance measures. The framework for the action plan is consistent with Transport Canada's third strategy and is organized according to the seven strategic challenges. In order to identify which of the three themes are supported by specific commitments, the following symbols are used:

URBAN FREIGHT MARINE

In addition, for the fourth round of sustainable development strategies, the federal government has set six sustainable development goals related to Clean Water, Clean Air, Reducing Greenhouse Gas Emissions, Sustainable Communities, Sustainable Development and Use of Natural Resources, and Governance for Sustainable Development.

The six sustainable development goals are as follows:

I Water – Clean and secure water for people, marine and freshwater ecosystems.
II Clean Air – Clean air for people to breathe and ecosystems to function well.
III Reduce greenhouse gas emissions.
IV Sustainable Communities – Communities enjoy a prosperous economy, a vibrant and equitable society, and a healthy environment for current and future generations.
V Sustainable development and use of natural resources.
VI Strengthen federal governance and decision-making to support sustainable development.

These goals integrate and complement the objectives set for Greening Government Operations. It is hoped that by identifying how departmental activities support broader federal goals and objectives in respect of sustainable development that Canadians will gain a clearer picture of how the federal government works, in an ongoing way, to ensure improvements in our quality of life. At the same time, improved coordination will strengthen accountability, drive government-wide performance, and focus and stimulate activity in some key areas.

Transport Canada has identified a number of activities, related to the delivery of its mandate, that support progress toward achieving the federal sustainable development goals. These activities and commitments are identified within our sustainable development strategy action plan by a reference to the federal goals that they support. More information on the federal sustainable development goals and on work to Green Government Operations is available on the worldwide web at www.sdinfo.gc.ca.

Challenge 1: Encourage Canadians to make more sustainable transportation choices.

What is the challenge?
To create awareness and educate Canadians about sustainable transportation. This includes awareness of the issues, benefits and trade-offs, as well as practices and choices that individuals can adopt to reduce the adverse impacts of transportation.

Why is it important?
Changing behaviour is an essential part of the response to the environmental impacts of transportation. All segments of society need to understand the impacts of their transportation behaviour in order to make choices that reduce the adverse effects of transportation on the environment.

Long-term objective:
To ensure that Canadians are aware of the benefits of sustainable transportation and factor this into their personal transportation choices. This should result in reduced air pollution, congestion and other environmental impacts currently related to the use of personal motor vehicles.

Commitments	Targets	Performance measures	Themes & federal goals supported
1.1 Active Transportation Transport Canada will explore the need for a national active transportation strategy by 2009/2010. This strategy would provide information/incentives, guidelines, benchmarks, and demonstration projects to assist provincial and municipal government efforts to encourage more active transportation in urban areas, with particular emphasis on walking and cycling. **Partners:** Public Health Agency, Health Canada, Infrastructure Canada, other federal departments and other levels of government.	• Achieve a consensus among federal departments, provinces/territories and municipalities on the value of a national active transportation strategy by 2007/2008. • By 2009/2010, raise the profile of active transportation among provinces/territories and municipalities through a show of federal support and interest. • Subject to the results of the above targets and available funds, with key partners, initiate the development of a national active transportation strategy by 2009/2010.	• Consensus among federal departments, provinces/territories and municipalities on the value of a national active transportation strategy as shown by a decision to pursue such a strategy or not. • Number of provincial/territorial and municipal stakeholders engaged in consultations and strategy development. • Strategy development initiated.	 Federal Goals II, III

Commitments	Targets	Performance measures	Themes & federal goals supported
1.2 Transportation Demand Management To facilitate the expanded application of transportation demand management (TDM) approaches, Transport Canada will support the development of case studies, learning events, a website, recognition programs, and other information products that enhance capacity to implement and measure the effectiveness of sustainable, integrated, urban passenger transportation projects and policies. This work is intended to help facilitate the replication of successful practices by 2009/2010. **Partners:** Provinces and territories, municipalities, transportation and environmental groups, academia and professional associations.	• Development of 15 sustainable urban transportation case studies and issue papers and other information sharing products by 2009/2010. • Support for 20 learning events with at least 500 attendees by 2009/2010. • Support for 4 national sustainable urban transportation awards by 2009/2010. • Development and distribution of 6 electronic newsletters by 2009/2010.	• Number of sustainable urban transportation case studies and issue papers developed. • Number of learning events and number of attendees. • Number of national sustainable urban transportation awards. • Number of electronic newsletters produced and distributed. • Take up of TDM strategies in Canada.	 Federal Goals II, III, IV
1.3 Green Commute Transport Canada has developed a Commuter Options toolkit and workshop for public and private sector employers. It is a complete guide for employers on how to implement a commuter options program within the public and private sector. In 2007/2008, Transport Canada will undertake to support and encourage the uptake of Commuter Options within federal departments and agencies through programs and policies to encourage sustainable transportation. **Partners:** Public and private sector employers.	Provide support to enable Commuter Options within other federal departments and agencies across Canada by: • Studying the costs and benefits of enabling federal employees access to payroll-deducted transit programs across Canada by 2006/2007. • Delivering 3 commuter options workshops per year to interested public and private employers, beginning in 2007/2008. • By 2008/2009, work with federal partners to amend existing policies to enable reduction of single occupancy vehicle trips. Examples include parking and accommodation policy.	• Results of the Transit Pass program evaluation report, which includes a review of the costs and benefits of payroll-deducted transit. • The number of workshops delivered and their outcomes. • The number of federal policies reviewed and/or amended.	 Federal Goals III, IV

Commitments	Targets	Performance measures	Themes & federal goals supported
1.4 Explore Use of Economic Measures Transport Canada will work with partners to explore the use of market incentives to increase the production and purchase of environmentally friendly motor vehicles, ongoing between 2007/2008 and 2009/2010. **Partners:** Federal departments through the TC-led Interdepartmental Fuel Efficiency Working Group on Economic Instruments (Finance, Natural Resources Canada, Environment Canada, Industry Canada).	• Improve Transport Canada's economic instrument modelling framework and enhance Canadian data as it relates to the reaction of consumers and manufacturers to economic instruments, subject to funding, by 2007/2008. • Conduct further analysis of a range of economic instruments by 2007/2008. Transport Canada will, subject to funding, expand its analytical capacities to cover, for example, light duty vehicles fleet wide and new medium- and heavy-duty trucks initiatives. • Consult with stakeholders, including motor vehicle industry NGOs, Alternate energy producers and the academic community about design options and administration / implementation issues ongoing between 2007/2008 and 2009/2010.	• Quality, usefulness and timeliness of analysis and data. • Number of analysis and studies completed. • Number of consultations conducted.	 Federal Goals II, III, VI

Challenge 2: Enhance innovation and skills development.

What is the challenge?
To foster the development and application of innovative transportation-related technologies, management practices and services in the public and private sectors, and among industry, academic and transportation sector stakeholders to increase the positive social, economic, and/or environmental outcomes of transportation activities. To ensure skills shortages in transportation are identified, and to work with other governments, industry and transportation stakeholders to address skills-related issues.

Why is it important?
Innovation is a key element of the government's strategy to promote employment and prosperity. Transportation offers many opportunities for new technologies and techniques to help to improve safety and security, enhance efficiency and meet environmental objectives. Some of these could develop into new industries, leading to improvements in national productivity and the creation of new markets for Canadian products and services.

Long-term objective:
To ensure that the transportation sector is an attractive field for employment and that opportunities for skills development keep pace with innovation.

Commitments	Targets	Performance measures	Themes & federal goals supported
2.1 Skills Development in the Transportation Sector In 2007/2008-2009/2010, Transport Canada will undertake specific initiatives to encourage Canadians to consider careers and/or academic studies related to transportation, and will work with stakeholders to promote the continued competitiveness of the transportation sector. *2.1.1* From 2007/2008- 2009/2010, Transport Canada will work in cooperation with stakeholders in the public and private sectors, including sector councils, to raise the profile of the transportation sector careers, and to act as a catalyst for the exchange of ideas, expertise, and experience in transportation skills development.	*2.1.1* • Ongoing cooperation with federal-provincial-territorial jurisdictions to produce tools (including a compendium) for the transportation stakeholders to use in identifying and implementing strategic responses to skills development challenges.	*2.1.1* • Number of jurisdictions that agree to distribute compendium electronically to stakeholders. • Number of provincial/territorial jurisdictions in regular dialogue with Transport Canada regarding transportation skills development issues. • Number of teleconference/meetings with federal/provincial/territorial jurisdictions to discuss skills development issues.	

Commitments	Targets	Performance measures	Themes & federal goals supported
2.1.2 Work cooperatively with public and private sector stakeholders, the academic community, and sector councils, to identify specific skills and labour force shortages, and to identify means to address these shortages from 2007/2008 to 2009/2010. **Partners:** Public and private sectors, including sector councils and the academic community.	*2.1.2* • Hold and/or participate in a series of roundtables to identify current and expected skills and labour force shortages in various regions across Canada, and work with public and private sector stakeholders to identify cooperative solutions by 2009/2010. • Work with the academic sector and public and private sector organizations to promote the analysis of skills and labour force shortages, to examine the response to these issues in various jurisdictions, and to recommend future action to address these shortages by 2009/2010.	*2.1.2* • Number of roundtables regarding skill and labour shortages, resulting in the identification of specific solutions. • Delivery of recommendations for action to address skills and labour force shortages in specific regions of the country and/or across Canada.	
2.2 Climate Change Impacts and Adaptation Transport Canada will work with other departments and relevant stakeholders to further our understanding of adaptation measures that will support and enhance the sustainability of Canada's transportation system. In particular, beginning in 2006/2007, Quebec Region will undertake a study of the permafrost and the thermal regime of the landing strip at Kuujjuaq Airport. The long-term goal of this study is to identify adaptation measures before climate change impacts occur and to better manage the maintenance of the landing strip. **Partners:** Centre d'études nordiques de l'Université Laval.	• Preliminary assessment and recommendations aiming to increase the understanding and knowledge of the occurrence of permafrost and of the Kuujuuaq landing strip thermal regime in 2007/2008. • Subject to the availability of funds, and depending upon the recommendations of the preliminary assessment, increase the understanding and knowledge of the occurrence of permafrost and of the thermal regime in order to assess the vulnerability of the landing strip to forecasted climatic changes over the next 20 years, in 2008/2009.	• Results of the analysis, including number of recommendations identified. • Usefulness of study results in understanding climate change impacts and adaptation (Subject to funding).	 Federal Goal III

Challenge 3: Increase system efficiency and optimize modal choices.

What is the challenge?
To implement measures that improve the efficiency of transportation. This includes measures to encourage appropriate modal choices, and intermodal connections, and support transportation services and infrastructure.

To facilitate the development, implementation and maintenance of transportation services for remote communities and persons with disabilities.

Why is it important?
A more efficient transportation system will deliver the same results with fewer or more efficient movements. More efficient movements mean that legitimate needs for mobility and trade can be met with reduced environmental impacts.

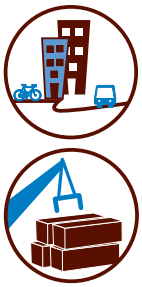
Access, without undue obstacle to mobility, is an important social aspect of sustainable development. The development of mechanisms to preserve and enhance mobility and access is an important complement to the quest for efficiency and environmental improvements.

Long-term objective:
To have Canada's transportation system recognized worldwide as one of the most efficient and environmentally responsible systems. All Canadians should have access to the national transportation system without experiencing undue obstacles to their mobility.

Commitments	Targets	Performance measures	Themes & federal goals supported
3.1 Intelligent Transportation Systems (ITS) Beginning in 2007/2008, Transport Canada will work with partners to build on the successes of previous investments in Intelligent Transportation Systems. Projects to be funded will include those involving research, development and deployment of ITS that, in turn, will lead to further system integration and that will promote greater efficiency, safety, security and sustainability of the transportation system. **Partners:** Provinces/territories, municipalities, academia, not-for-profit corporations, transportation agencies, private sector, aboriginal persons.	• Funding to be provided for research, development and deployment projects in each of fiscal years 2007/2008, 2008/2009, and 2009/2010.	• Number of deployment projects funded. • Number of research and development projects funded. • Number of agreements signed with partners.	  Federal Goal III

Commitments	Targets	Performance measures	Themes & federal goals supported
3.2 Promote Shortsea Shipping Shortsea shipping refers to a multimodal activity that incorporates the marine movement of cargo or passengers between points that are in relative proximity to one another without crossing an ocean, and includes domestic as well as international maritime transport along coastlines, to and from nearby islands, or within lakes and river systems. In 2007/2008–2009/2010, Transport Canada will continue to explore opportunities for shortsea shipping as a means to improve utilization of waterway capacity, strengthen intermodalism, facilitate trade, reduce greenhouse gas emissions, and to improve the overall performance of the transportation system. This will include fostering a nationally integrated approach to shortsea shipping as well as working internationally with the United States and Mexico. **Partners:** U.S. and Mexico transportation authorities, industry, service providers, other levels of government, other stakeholders.	• Raise the profile of shortsea shipping in North America, ongoing between 2007/2008–2009/2010. • Enhance understanding of the viability of shortsea shipping, its benefits, and barriers to implementation, ongoing between 2007/2008 –2009/2010.	• Targeted shortsea shipping initiatives. • Completion of studies in key areas of policy, markets, trade, urban transportation and sustainability.	

Commitments	Targets	Performance measures	Themes & federal goals supported
3.3 Infrastructure Best Practices Transport Canada is responsible for several current (e.g. Strategic Highway Infrastructure Program) and upcoming infrastructure programs. These programs will continue to support sustainable transportation objectives (e.g. greenhouse gas reduction; economic and social benefits to communities) through project selection due diligence criteria and project performance indicators. **Partners:** Infrastructure Canada, provinces, territories, municipalities and others.	• Develop and incorporate sustainable transportation evaluation criteria and performance indicators into new transportation infrastructure programs by 2006/2007.	• Number of projects funded under current programs and percentage of projects successfully meeting the sustainability objectives. • Number of sustainable transportation indicators developed for new programs.	  Federal Goals II, III, IV
3.4 Mobility Needs of the Aging Population and Persons with Disabilities Transport Canada will continue to work with partners including the transportation industry, seniors, and persons with disabilities on an ongoing basis to enhance the accessibility of federally regulated modes of transport across the country. **Partners:** Persons with disabilities, organizations of and for persons with disabilities and seniors, representatives of the transportation industry, other federal departments/agencies, other levels of government.	• Evaluate the effectiveness of a variety of policy instruments for improving accessibility in the federal transportation system, by 2007/2008.	• Completed evaluation of the effectiveness of various policy instruments for future policy developments for enhancing accessibility in the federal transportation system.	

Commitments	Targets	Performance measures	Themes & federal goals supported
3.5 Quebec City – Windsor Corridor Modal Choice Study Efforts to promote a more efficient and environmentally sustainable transportation system require a good understanding of how potential measures (e.g., infrastructure investments, regulatory or tax changes) are going to affect demand for each mode. This, in turn, requires a good understanding of how shippers and passengers make modal choice decisions. Transport Canada will complete a study of the Quebec City – Windsor Corridor by 2008/2009, with the goal of building a better understanding of modal choices in Canada's busiest transportation corridor. This will involve developing models to analyze the impact of potential policy decisions on freight and passenger modal choice decisions in the Quebec-Windsor Corridor. **Partners:** Ministère des transports du Québec, Ontario Ministry of Transportation.	• Completion of shipper modal choice model (development and calibration) by 2006/2007. • Development and calibration of passenger modal choice model by 2008/2009.	• Relevance and extent of use of models in transportation-related policy development within and outside the federal government. • Expert recognition of quality of model from within and outside government (robustness of estimates, predictive capacity, etc.).	

Challenge 4: Enhance efficiency of vehicles, fuels and fuelling infrastructure.

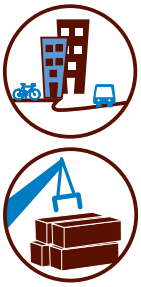
What is the challenge?
To implement incentives (regulatory, economic, or voluntary) to improve the energy efficiency of vehicles (marine and surface modes), fuels and fuelling infrastructure while preventing or reducing air emissions (primarily), as well as liquid effluents and solid wastes. Measures include more efficient vehicles and systems, cleaner fuels, and the use of pollution-control technology.

Why is it important?
Transportation activities are a significant source of air emissions, contributing to increased greenhouse gas emissions, smog and pollution from airborne toxins. Canada is committed to reducing emissions of greenhouse gases. Canadian standards on particulate matter and ozone, as well as Canada-U.S. agreements, also require significant reductions in emissions of smog precursors.

Long-term objective:
To contribute towards significant reduction in air emissions, liquid effluents and solid waste as a result of the implementation of regulatory, economic and voluntary incentives, coupled with more efficient vehicles and systems, cleaner fuels and the use of pollution-controlled technology.

Commitments	Targets	Performance measures	Themes & federal goals supported
4.1 Promote Advanced Technology Vehicles Transport Canada will on an annual basis evaluate advanced technology vehicles, conduct tests, inspections, evaluations and reports detailing the ability of advanced technology vehicles to comply with existing regulatory requirements and encourage manufacturers to accelerate the introduction of advanced technology vehicles. **Partners:** Auto manufacturers, other auto sector stakeholders, alternate energy providers and professional associations.	• Evaluate the performance of advanced technology vehicles on an annual basis. • Conduct activities to raise public awareness on an annual basis that also allows program information to be disseminated.	• Number and type of vehicles and technologies tested with results presented in various report formats. • Number and type of activities throughout the year.	 Federal Goals II, III

Commitments	Targets	Performance measures	Themes & federal goals supported
4.2 Motor Vehicle Fuel Consumption Transport Canada will track on an annual basis, fuel consumption of motor vehicles sold in Canada, support government objectives for improved fuel consumption and GHG emissions and generate consumer information to improve vehicle choices. The Government of Canada has tabled amendments to the *Motor Vehicle Fuel Consumption Standards Act* to modernize the Government of Canada's authority to regulate new vehicle fuel consumption. Regulations on fuel consumption of road motor vehicles under the *Motor Vehicle Fuel Consumption Standards Act* will be developed for the model year 2011. This will follow the expiry of the voluntary agreement between industry and the government to achieve a 5.3 megatonne reduction in greenhouse gas emissions from motor vehicles in Canada in 2010. **Partners:** Environment Canada, Natural Resources Canada, Industry Canada, auto sector stakeholders, energy providers and other interested parties.	• Collect, verify and report on fuel consumption of new vehicles, on an annual basis. • Maintenance of the Vehicles Fuel Economy Information System (VFEIS) database, on an ongoing basis. • Develop new regulation, under the *Motor Vehicle Fuel Consumption Standards Act* to take effect for the 2011 model year.	• Timely data collection from all manufacturers. • Audit and verification of data. • Annual reporting of results. • New regulations developed for 2011.	 Federal Goals II, III

Commitments	Targets	Performance measures	Themes & federal goals supported
4.3 Reduction of Emissions from the Rail Industry Transport Canada and Environment Canada will support a Memorandum of Understanding that has been negotiated with the Railway Association of Canada that ensures that its member railways reduce emissions of air pollutants consistent with the United States Environmental Protection Agency (EPA) air pollutant standards and continues to improve its GHG emissions performance between 2006 and 2010. Transport Canada will develop and implement new regulations under the *Railway Safety Act* to take effect in 2011 for federally regulated railways. **Partners:** Environment Canada, Railway Association of Canada and its railway members, other federally regulated railways and other interested parties.	• Work with the Railway Association of Canada and Environment Canada to fully implement the commitments negotiated under the Memorandum of Understanding, between 2006/2007 and 2009/2010. • Develop new regulation, under the *Railway Safety Act* to take effect following the end of the Memorandum of Understanding in 2010.	• Reductions in emissions achieved due to Memorandum of Understanding. • New regulations developed for 2011.	 Federal Goals II, III

Challenge 5: Improve performance of carriers and operators.

What is the challenge?
To promote enhanced environmental management and operations by organizations in the transportation sector. To facilitate the adoption of good management practices throughout the transportation sector. To implement incentives (regulatory, economic or voluntary) to improve efficiency and to prevent or reduce air emissions, liquid effluents and solid wastes in operations. This includes measures to prevent, prepare for, and respond to accidental spills and measures to reduce or eliminate routine discharges of effluent and waste.

Why is it important?
Transportation activities are a significant source of air emissions, liquid effluents and waste and they create a risk of accidents that can release fuels or hazardous materials into the environment. In addition to the characteristics of vehicles, fuels and infrastructure, how they are used and maintained is important. Mitigating these impacts is important to preserve the integrity of aquatic and terrestrial ecosystems, and avoid human exposure to hazardous materials.

Long-term objective:
To encourage organizations in the transportation sector to integrate environmental management into normal business practice in response to incentives (regulatory, economic or voluntary) to improve efficiency and risk management.

Commitments	Targets	Performance measures	Themes & federal goals supported
5.1 Promote Best Practices for Environmental Management in the Transport Sector Transport Canada will work with partners to promote best practices for environmental management and corporate responsibility in the transportation sector. *5.1.1 Study the business case for an Environmental Incentive Program in the marine sector* In 2007/2008, Transport Canada will advance the prospects of an environmental incentive program, by investigating and developing the business case for the key players, including interested ports.	*5.1.1:* • Complete business case by March 2008.	*5.1.1:* • Usefulness of business case, including identified incentive opportunities, to advance the prospects of an environmental incentive program.	 Federal Goal I

Commitments	Targets	Performance measures	Themes & federal goals supported
5.1.2 Strategic Partnerships Beginning in 2007/2008, Transport Canada will draw upon available resources to maintain and build strategic partnerships to help harmonize emission reduction efforts internationally as well as work on domestic and government/ industry initiatives to reduce emissions. Emphasis will be on building industry engagement and leadership for longer-term change, and on establishing targets and action plans that can offer a fast, flexible and cost effective path to emissions reductions within a broader regulatory framework. Transport Canada will also work with governments and transportation stakeholders to identify technological and operational opportunities to mitigate environmental impacts from transportation activities. **Partners:** Modal associations and transportation and environmental groups, and international partners.	*5.1.2:* • Increase harmonization of international emission reduction efforts through Transport Canada participation in international forums such as ICAO, IMO, etc. by 2008/2009. • Facilitate the establishment of strategic partnerships designed to improve fuel efficiency for freight shippers and forwarders, by 2011. • With the Transportation Association of Canada (TAC), compile a synthesis of practices on Environmental Management Systems (EMS) and include EMS how-to guidance material by 2007/2008. • With the U.S. Government, under the National Academy of Sciences' Transportation Research Board, participate on the Airports Cooperative Research Panel to study and assess environmental impacts from airport activities and develop mitigative strategies by 2008/2009. • With International Civil Aviation Organization (ICAO) Committee on Aviation Environmental Protection (CAEP) Working Group 2, develop an Airport Air Quality Guidance Document by September 2007/2008. • Extend Transport Canada's partnership with the U.S. Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) on a Research Center of Excellence entitled Partnership in Air Transportation Noise and Emissions Reduction, through to 2009/2010.	*5.1.2:* • Harmonization of international reduction efforts as evidenced by the ratification of international regulations of emission reductions and codes of practices and guidelines endorsed by international bodies. • Number of partnerships established to support the fuel efficiency for freight shippers and forwarders. • Number of TAC members that have developed and implemented EMSs for their respective organizations. • Documented success stories and lessons learned. • Published findings of Airports Cooperative Research Panels. • Publication of the Guidance Document. • Research outputs leading to practical technological and/or operational improvements.	 Federal Goals II, III

Commitments	Targets	Performance measures	Themes & federal goals supported
5.2 Marine Sector Pollution Control To promote sustainable development in the marine sector, by 2009/2010, Transport Canada will undertake: • a further examination of **Sulphur Emission Control Areas (SECA)**; • a program of research and development directed at identifying further improvements in **ballast water management**; • the design and implementation of an effective national accident prevention and response regime for **hazardous and noxious substances (HNS)**, sufficient for Canada to meet its obligations under the OPRC-HNS Protocol; • the improvement of **ship waste management** by designing and implementing a comprehensive national plan for the provision, operation and regulation of port waste reception facilities; and • the improvement of **aerial surveillance** to monitor marine pollution. **Partners:** Environment Canada, Fisheries and Oceans Canada, Canadian Coast Guard, private sector, associations, industry, academics, international regulatory agencies, other federal departments, other levels of government.	*Further Examination of SECA* • In cooperation with Environment Canada, complete the examination of the merits of establishing SECA in selected areas of the country and internationally by 2009/2010. • Develop an inventory of sulphur emissions from ships, by 2008/2009. *Ballast Water Management* • To assist in the development and approval of shipboard treatment systems capable of meeting international performance standards by 2008/2009. *HNS spill response regime* • Develop the legislative structure required to put a HNS regime in place together with the necessary regulations and standards starting in 2007/2008. • Create the required HNS response mechanism in order to provide a nationally consistent method of responding to, and managing the response to marine HNS incidents and spills from ships and during the loading and unloading of ships at chemical handling facilities starting in 2007/2008. • Take the necessary action to permit Canada to accede to the OPRC-HNS Protocol starting in 2009/2010. *Ship Waste Management* • Finalize a program to improve the provision of shore side waste reception in ports by 2008/2009. *National Aerial Surveillance Program* • Continue to increase the effectiveness of the National Aerial Surveillance Program (NASP) by increasing the	*Further Examination of SECA* • The number of areas identified where higher standards are implemented. • Sulphur emission levels. *Ballast Water Management* • Number of systems developed and approved. *HNS spill response regime* • Number of regulations and standards developed. • Effectiveness of national HNS incident response framework. • IMO indication of Canada's accession to the OPRC-HNS Protocol. *Ship Waste Management* • Improvements to waste reception at ports. *National Aerial Surveillance Program* • Number of pollution patrol hours flown in each Region - per month, per year. • Number of ship source pollution incidents and number of mystery spills detected - per mission, per month, per year. • Number of vessels visually observed and number identified by the aircraft's Automatic Identification System – per hour, per mission, per month, per year. • Number of prosecutions resulting from NASP pollution patrols – per year.	 Federal Goal I

Commitments	Targets	Performance measures	Themes & federal goals supported
	frequency of patrols and expanding surveillance to areas not normally patrolled, such as the Arctic. • Improve capability for observing, detecting and reporting illegal discharges and identifying the vessels that are responsible for polluting Canada's marine environment. By 2007/2008, Transport Canada's modernized Moncton-based Dash 8 aircraft will be fully operational with trained crews and by 2008/2009 an identical capability will be implemented on the West Coast.		

Challenge 6: Improve decision-making by governments and the transportation sector.

What is the challenge?
To understand transportation issues fully, including a better understanding of the scale of transportation activities, their impacts (positive and adverse), and the cost and benefits of policy measures. To use and disseminate better information and to use better decision-making processes and frameworks to reach more balanced, timely, transparent and effective decisions.

Why is it important?
Better information leads to better decisions. Given the importance of transportation to the economy, society and the environment, it is essential that governments and stakeholders have access to accurate and reliable data and analysis.

Sustainable development is best demonstrated through the process of assessing environmental, economic and social considerations, and reaching conclusions on the appropriate balance and integration of goals.

Long-term objective:
To ensure existing data gaps are filled and the necessary analysis is done to improve decision-making by governments and stakeholders in the transportation sector.

Commitments	Targets	Performance measures	Themes & federal goals supported
6.1 Transportation Data and Information Transport Canada will continue to lead a centralized effort to organize and improve the collection, dissemination and analysis of sustainable transportation information in all modes. This includes the development of new data and analytical tools to improve decision-making. In the broader context of amendments to the *Canada Transportation Act,* Transport Canada proposes to amend the provisions on data collection to ensure the availability of consistent useful information on various elements of the transportation system. Amendments to the CTA will also bring the environmental aspect of the transportation system into the legal mandate of the department. **Partners:** Canadian Transportation Agency, Statistics Canada.	• Conduct, on a regular basis, assessments to identify the most important data gaps with regards to transportation activity and energy use for all modes, between 2006/2007 and 2009/2010. • In 2006/2007, Transport Canada will develop a database of activity, fuel use and greenhouse gas emissions per mode for all modes of transportation. This database will enable the identification of data gaps, and areas for further work to address data gaps. • The department will work with partners, including Statistics Canada, to improve data collection with respect to road vehicle use (including truck freight), by 2007/2008.	• Identification of the major data gaps and development of a strategy to address them. • Creation of a consistent GHG emissions database for transportation. • Number of data collection initiatives related to road vehicle use.	 Federal Goal VI

Commitments	Targets	Performance measures	Themes & federal goals supported
	• Continue to develop and expand the analytical capacity of Transport Canada to assess the economic and environmental costs and benefits of policy and program measures. In 2006/2007, Transport Canada will develop a new basic transportation analytical framework covering light duty vehicles and other modes of transportation. In the following years, Transport Canada would, subject to funding, explore how it could improve the basic framework mainly in relation to surface transportation. • In the context of the *Canada Transportation Act* amendments, propose amendments to the data provisions to improve the data gathering quality by 2006/2007.	• Transportation data and analysis used in government decision-making process. • *Canada Transportation Act* amendments to the data provisions proposed for the adoption by Parliament.	
6.2 Understanding Economic, Social and Environmental Costs of Transport Transport Canada will increase its understanding of the full cost implications of the use of different modes of transportation. In 2006/2007 and 2007/2008, Transport Canada will conduct a number of studies and research projects to help fill analytical gaps and contribute to a national perspective on key sustainable transportation issues. **Partners:** Provincial ministries of transport.	• Transport Canada will lead the development of an environmental analytical framework, by 2008/2009 to estimate the impact of various transportation-related environmental policies and instruments. This initiative includes the evaluation of the costs of the following emissions: clean air (CO, $PM_{2.5}$, PM_{10}, NO_X, VOCs, O_3, SO_2), GHGs and noise. The emphasis is on human health impacts. • To have a synthesis report made available to the public by 2008/2009.	• Better sense of priorities in assessing the relative importance of each cost element. • Release of synthesis report.	   Federal Goal VI

Commitments	Targets	Performance measures	Themes & federal goals supported
6.3 Funding for Sustainable Development Initiatives In 2006/2007, Transport Canada will establish an internal sustainable development strategy fund of up to $1 million/year for three years for innovative projects that make significant contributions to sustainable transportation. Approved projects will be considered SDS commitments. **Partners:** To be determined.	• Beginning in 2006/2007, select projects for funding on an annual basis in accordance with established criteria. • Implement approved projects, beginning in 2007/2008.	• Number of projects funded and total investment. • Results of specific projects, including relevant improvements to environmental quality.	

Challenge 7: Improve management of Transport Canada operations and lands.

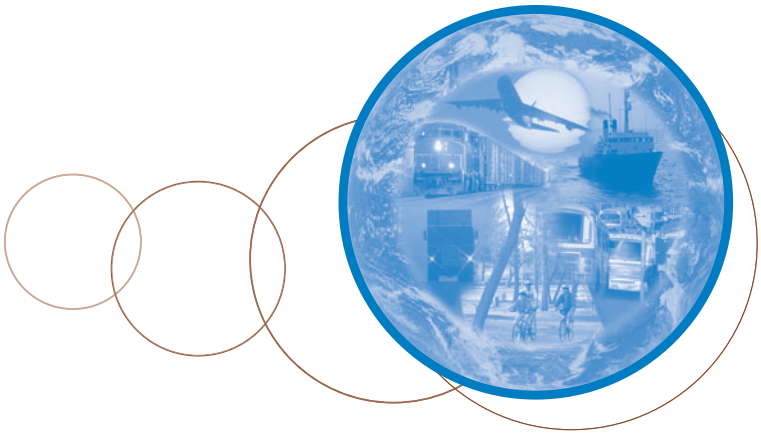
What is the challenge?
To improve environmental management within the department and take action to mitigate the environmental impact of the department's operations. To promote enhanced environmental management by other organizations in the transportation sector operating on federal lands, and those under federal jurisdiction.

Why is it important?
A systematic approach to environmental management allows organizations to understand the nature of their environmental impacts and plan accordingly. By adopting best practices for environmental management, Transport Canada can reduce its own environmental impacts and set an example for others in the transportation sector. Although the department no longer operates many components of the transportation system, it retains a role and responsibility as landlord and overseer, to ensure appropriate environmental management by other organizations. Overall, Transport Canada is in a good position to demonstrate leadership on environmental management and disseminate best practices.

Long-term objective:
To ensure environmental impacts of Transport Canada's operations are mitigated and minimized through the continued implementation and improvement of the department's Environmental Management System.

Commitments	Targets	Performance measures	Themes & federal goals supported
7.1 Transport Canada Environmental Management System Transport Canada will implement its Environmental Management System (EMS) on an ongoing basis, including new targets that focus on priority areas in the department's operations. The department's EMS is based on the International Organization for Standardization (ISO) 14001 standard and the federal government's *Guide to Green Government*. Fundamental to successfully integrating environmental considerations into daily decision-making, the EMS helps the department meet its objectives for sustainable development. The goal of the EMS is to produce a framework for continuous monitoring of departmental operations, which provides direction to its environmental activities. (See Appendix B for EMS framework). **Partners:** Transport Canada Headquarters and Regions.	• Conformance with the environmental management system framework (see Appendix B) by 2009/2010.	• Level of conformance with the Environmental Management System Framework.	Federal Goals I, III, IV, V, VI

Commitments	Targets	Performance measures	Themes & federal goals supported
7.2 Pickering Green Space Lands Transport Canada will implement selected Green Space projects by 2009/2010 that support the Draft Green Space Master Plan and demonstrate environmental stewardship of the Pickering Green Space Lands.	• Begin development of an Agricultural Management Plan, that will incorporate current best management practices, by 2007/2008. • Undertake a stream bank erosion study and implement stream bank restoration by 2009/2010.	• Plan for best management practice for agriculture developed. • Opportunities for participation of tenant farmers identified, and lease agreements reviewed. • Report prepared detailing priority restoration areas and phasing of work identified. • Natural species plantings in place to address stream bank erosion.	



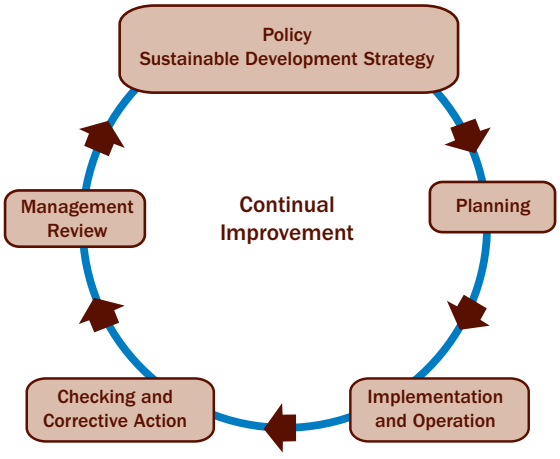
Part 7:

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 second and third sustainable development strategies took steps to improve the department's system for managing the strategy and implementing its commitments (see Appendix C for a summary of the sustainable development strategy review). The ISO 14001 model is used as a basis for addressing the policy, planning, implementation and operation, checking and corrective action, and management review processes for the strategy. Figure 7.1 portrays the major components of the ISO management system.

Figure 7.1: A Continuous Improvement Model for Sustainable Development



Transport Canada will continue to improve its ability to monitor progress in implementing its sustainable development commitments and targets, as follows:

Policy

- Transport Canada will develop and obtain senior management approval of an ISO-compliant Sustainable Development Policy Statement, by 2008/2009.
- Transport Canada will highlight key 2007–2009 SDS commitments, targets and indicators in the department's annual *Report on Plans and Priorities* (Federal goal VI).
- Transport Canada recognizes that the support of the department's senior management is critical. The department will undertake to ensure that the accountability accords of those senior managers responsible for implementing specific actions in the strategy, reflect their respective 2007-2009 SDS commitments.

Planning

- Transport Canada will continue to hold regular meetings (for the 2007/2008–2009/2010 period) of the department's internal Sustainable Development Strategy Committee to oversee and coordinate implementation of the strategy, and to provide a forum for sharing sustainable development information and best practices across departmental groups and regions.

Implementation and operation

- Transport Canada will undertake a review of training and competency needs for staff involved in the implementation of sustainable development commitments and objectives, by 2008/2009. The department will develop and implement a training plan to ensure that Transport Canada sustainable development training courses (including the department's Sustainable Development Capacity Course) are available as required.

- Transport Canada will also join with other government departments and the Canada School of Public Service to design and deliver Government of Canada Sustainable Development training material. Delivery to begin in 2007/2008 (Federal goal VI).

- The department will undertake efforts to increase employee awareness and understanding of sustainable transportation as well as the department's environment and sustainable development programs and activities. This will include learning events and sustainable transportation articles in departmental newsletters on an ongoing basis.

Checking and corrective action

- A status report on sustainable development commitments, targets and performance measures will be included in the department's annual *Departmental Performance Report* (Federal goal VI).

- Transport Canada will produce an annual SDS Progress Report, supplemental to the departmental performance report. The results of this report will be presented annually to Transport Canada's senior management committee.

Management review

- Transport Canada will conduct a review of its sustainable development strategy every three years — the next taking place in 2008/2009.

- Transport Canada will engage its external National Advisory Group, beginning in 2008/2009, 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

Transport Canada recognizes public consultation as a vital element in designing its Sustainable Development Strategy. In promoting sustainable transportation, Transport Canada must work in cooperation with other federal departments, other levels of government, academia, non-governmental organizations and others. The department received considerable input from across Canada that was instrumental in shaping the *Sustainable Development Strategy 2007-2009*.

A key component in developing this strategy was Transport Canada's National Advisory Group, a multi-stakeholder group mandated to advise the department on the development of the strategy. Beginning in March 2006, the department met with the advisory group to receive their advice on the development of *Sustainable Development Strategy 2007-2009*. In particular, the group provided feedback on the approach to developing the strategy, issue scan, issue papers, consultation process, and final strategy.

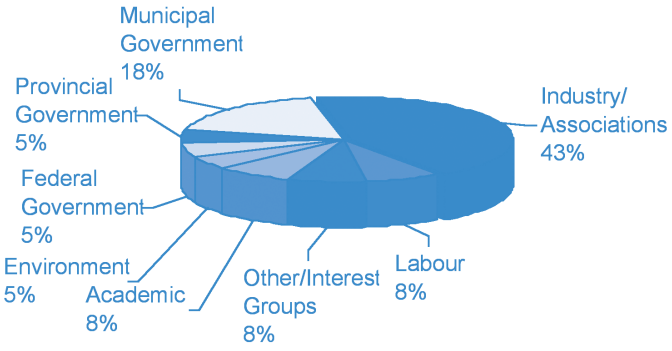
In preparation for the department's 2007-2009 strategy, Transport Canada commissioned three expert issue papers, specific to the three themes that were selected as areas of focus: urban; commercial freight; and marine transportation. Each issue paper provided context about the key issues and trends within the specific theme area, challenges to address, and recommendations that Transport Canada could consider when developing the strategy. These papers were used to provide context and a starting point for the discussion and do not necessarily reflect Transport Canada's viewpoint.

Transport Canada then invited expert stakeholders to provide focused guidance on each of the three theme areas and specifically what Transport Canada should pursue in its 2007-2009 strategy. This consultation process took place in June 2006 through a series of expert workshops, each specific to one of the three aforementioned themes. The marine transportation workshop was held in Vancouver, the urban transportation workshop in Montreal and the freight transportation workshop in Toronto. The purpose of the workshops was to assist Transport Canada in defining the challenges and identifying possible commitments for the 2007-2009 strategy. The issue papers were circulated to invited participants in advance of the workshops. The authors of the papers also gave presentations on their respective papers at the workshops in order to stimulate discussion.

Within each workshop, a rich assortment of experts gave presentations spanning a variety of topics specific to each theme. These presentations provided additional basis for discussion that allowed the participants to actively discuss various opportunities, ideas, challenges and commitments to consider for the 2007-2009 strategy. All stakeholders were also provided with an opportunity to submit written comments. These comments were considered during the development of the strategy.

Over 75 stakeholders attended the three workshops and the department received sixteen written submissions.

Identification of Participants* by Sector
(* In person or in writing)



The workshops were successful in generating a healthy exchange of ideas and provided Transport Canada with valuable insights and recommendations. This allowed the department to move forward in the process of developing and finalizing clear, focused and achievable commitments and targets. Throughout the consultations, stakeholders proposed numerous long-term objectives and key priority measures to be considered during the development of the 2007-2009 strategy, including:

Marine

- Use collaborative partnerships in all aspects of policy and program development;
- Create linkages with existing industry programs to encourage voluntary action;
- Develop regional sustainable development councils;
- Facilitate data collection, analysis and dissemination;
- Encourage education and awareness of marine issues among the public and within the marine industry sector;
- Conduct a business case assessment for programs such as shortsea shipping practices, or Green Marine incentive program.

Urban

- Develop a long term sustainable funding formula for sustainable transportation initiatives with all levels of government involved through some form of regional councils;
- Support the development, publication and use of sustainable transportation indicators;
- Explore and assess potential use of fiscal tools for both behavioural change (positively and negatively), as well as for technology development and deployment;
- Transport Canada should lead by example, and provide national coordination on sustainable transportation;
- Improve governance to build capacity of other stakeholders in delivering sustainable transportation initiatives;
- Develop a national policy or strategy on urban transportation with performance indicators.

Freight

- Performance based funding arrangements should be established to improve the efficiency of the existing transportation system within each mode and to maximize practical improvements achievable within the short-term;
- Data collection should be undertaken to inform better decision-making, improve global competitiveness, and enable allocation of costs;
- Alternatives to encourage sustainable transportation shipping choices within the private sector should be explored;
- Support should be provided for research, development, and implementation of new technologies.

Keeping Transport Canada's mandate in perspective, stakeholder recommendations were incorporated into the strategy where possible. The department has strengthened or added commitments on active transportation, transportation demand management, economic measures, intelligent transportation systems, studying passenger and freight modal choices, reducing emissions, shortsea shipping, the business case for an environmental incentive program in the marine sector, ship waste management, transportation data and information, and understanding the full-cost implications of transportation.

For this strategy, Transport Canada has also added a new element of a Sustainable Development Strategy Fund (see commitment 6.3). It is likely

that many of the initiatives supported through this mechanism will support or advance recommendations made during the SDS workshops. These initiatives will be reported on through the annual SDS Progress Report.

The workshop reports are available at: www.tc.gc.ca/SDS

Members of the National Advisory Group:

Air Transport Association of Canada
Association of Canadian Port Authorities
Canadian Automobile Association
Canadian Industrial Transportation Association
Canadian Trucking Alliance
Canadian Vehicle Manufacturers Association
Chamber of Maritime Commerce
Electric Mobility Canada
Fisheries and Marine Institute of Memorial University
Go for Green
Government of Manitoba - Transportation Policy and Regulation
Government of Yukon - Department of Community and Transportation Services
Hudson's Bay Company
National Guide to Sustainable Municipal Infrastructure
Pollution Probe
The Railway Association of Canada
Translink
Transportation Association of Canada
TRIMAP Communications
University of Sherbrooke
University of Winnipeg
Western Transportation Advisory Council (WESTAC)
York University Centre for Applied Sustainability

Groups consulted on the Sustainable Development Strategy 2007-2009:

Representatives from these groups attended one or more of the three consultation workshops or submitted their comments in writing.

Academic

Canadian Institute of Marine Engineering
Dalhousie University
Université de Montréal
University of British Columbia, Sauder School of Business
University of Saskatchewan
University of Sherbrooke

Environment

Better Environmentally Sound Transportation (BEST)
Green Award Foundation
National Round Table on the Environment and the Economy

Government – Federal

Canadian Coast Guard
Environment Canada
Infrastructure Canada
Pacific Pilotage Authority
Ship-Source Oil Pollution Fund

Government – Municipal

Agence Metropolitaine de Transport
City of Edmonton
City of Fredericton
Communauté métropolitaine de Montréal
Federation of Canadian Municipalities
Moving the Economy
OC Transpo, Ottawa – Carleton Regional Transit Commission
Regional Municipality of Peel
Société de transport de l'Outaouais (STO)
Société de transport de Montréal
Town of Markham
Translink
Ville de Montréal, transports et environnement
Winnipeg Transit

Government – Provincial

BC Ministry of Transportation
Manitoba Transportation and Government Services
New Brunswick Department of Transportation
Ontario Ministry of Transportation

Industry / Associations

Air Transport Association of Canada
Association du transport urbain du Québec
Association of Canadian Port Authorities Canada
Association for Commuter Transportation Canada (ACT)
BC Ferries
Canadian Maritime Law Association
Canadian Pacific Railway
Canadian Trucking Alliance
Canadian Urban Transit Association
Chamber of Maritime Commerce
Chamber of Shipping of British Columbia
Council of Marine Carriers
Fednav
Genesee and Wyoming Canada Inc.
Hudson's Bay Company
International Shipowners Alliance of Canada
Ontario Power Generation
Ontario Trucking Association
P&O Ports Canada Inc.
Purolator
Seaspan Coastal Inter-Modal
Shipping Federation of Canada
St. Lawrence Seaway Management Corporation
Talfourd-Jones and Faroex
Teekay Shipping (Canada) Ltd.
The BC West Coast Pilots Ltd.
The Railway Association of Canada
Transportation Association of Canada – Urban Transportation Council
Weir Canada Inc.
Western Transportation Advisory Council (WESTAC)
WestJet

Labour

BC Ferries Marine Workers' Union
Canadian Merchant Service Guild
International Longshore and Warehouse Union – Local 400
International Longshore and Warehouse Union – Local 500
International Transport Worker's Federation
West Coast Seafarers' Union

Other / Interest Groups

Consultant in Freight Transportation
Greater Vancouver Gateway Council
IBI Group
Innovation Maritime
Noxon Associates Ltd.
Research and Traffic Group
The Logistics Institute
TRIMAP Communications

Appendix B: Transport Canada's Environmental Management System (EMS) Framework

Environmental aspect	Environmental impact	Objectives	Targets	Performance indicators
Air Emissions	Release of greenhouse gases	To reduce greenhouse gas emissions associated with Transport Canada operations.	Reduce Transport Canada greenhouse gas emissions by 4% from 1998/1999 baseline level, by 2010.	Percentage change in Transport Canada's greenhouse gas emissions, measured in carbon dioxide equivalent per year.
	Depletion of fossil fuel resources	To increase the amount of lower emission gasoline purchased for the federal fleet.	All gasoline purchased for federal road vehicles will be ethanol blended, where available.	Percentage of gasoline purchased for federal vehicles that is ethanol blended.
Land Management	Soil and groundwater contamination	To actively manage Transport Canada's known contaminated sites by using a risk-based priority approach, in accordance with the Federal Government Approach to Managing Contaminated Land.	To risk manage/ remediate Transport Canada's known contaminated sites, by 2010/2011.	Percentage of sites remediated.
Waste Management – Non Hazardous Waste	Quantity and type of waste going to landfills	To ensure that the No Waste Program is available in all applicable owned and operated facilities.	Recycling programs are in place for 100% of applicable owned and operated facilities by 2009.	Percentage of TC applicable facilities with recycling programs.
Hazardous Materials Management	Ozone layer depletion	To reduce the amount of equipment containing Ozone Depleting Substances (ODS) across the department.	Identify opportunities to reduce or eliminate equipment containing ODS by 2009.	Percentage change in Transport Canada's ODS equipment inventory.
Water - Drinking Water	Drinking water contamination	To ensure safe drinking water for Transport Canada employees and the public, at owned and operated facilities.	100% of drinking water management plans at required Transport Canada owned and operated facilities that provide drinking water by 2009.	Percentage of facilities that have drinking water management plans.

Environmental aspect	Environmental impact	Objectives	Targets	Performance indicators
Environmental Emergency Response	Soil, air, water (surface and groundwater) contamination	Ensure prevention and preparedness in the event of environmental emergencies at Transport Canada owned and operated facilities.	Establish criteria that prompts Environmental Emergency planning at owned and operated facilities.	Percentage of owned and operated facilities that require environmental emergency plans.
Green Procurement	Resource depletion from the provision of goods and/or services	To decrease the depletion of resources by buying green products.	Identify opportunities and take action to purchase greener goods and services by 2009.	Report annually on the dollar value spent or quantity purchased, and the number of contracts issued against the procurement targets established and identify associated environmental outcomes.
Wastewater	Contaminants or pollutants in wastewater that affect health and/or environment	Ensure wastewater generated from TC facilities meet applicable guidelines.	100% conformance of waste water generated from TC owned and operated applicable facilities meet applicable guidelines.	Percentage of facilities in conformance with applicable guidelines.

Note: Government-wide targets are included in the corresponding action plans of the EMS framework, which are located in the department's EMS manual.

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

Transport Canada's previous sustainable development strategies

Since 1997, Transport Canada has tabled three consecutive sustainable development strategies in Parliament, noting that each subsequent strategy is an opportunity to build upon, and strengthen the goals and commitments that have been made in the pursuit of sustainable transportation.

Transport Canada's first sustainable development strategy was tabled in Parliament in December 1997 and was comprised of eight strategic challenges and 47 commitments to action.

Transport Canada's second sustainable development strategy tabled in February 2001 was structured around seven strategic challenges and identified 29 commitments and more than 100 targets in areas where Transport Canada could make a significant difference within its mandate.

The department's third SDS features 32 commitments that were organized into seven strategic challenges. This third strategy saw more precision to the concept of sustainability and new targets and performance measures to address key sustainable transportation issues.

Did the department accomplish what it set out to do?

In the fall of 2005, the Sustainable Development Division of Transport Canada's Environmental Affairs unit engaged the Consulting Services unit of the Government Information Services Branch, Public Works and Government Services Canada to undertake a review of its Sustainable Development management system, assess its effectiveness, and comment on progress toward the 2004-2006 Sustainable Development Strategy promises.

The management review concluded that at the time of the evaluation and data collection Transport Canada is doing well in accomplishing activities under all seven of its SDS Challenges. With respect to the completion of targets, of Transport Canada's 173 SDS targets identified, 63 per cent are on track, 24 per cent had either been completed or were on-going, 9 per cent had not been initiated and 4 per cent were behind schedule. It was noted that the degree of an on-going effort required to complete targets depends on many factors, such as complexity, dependency on partners, and coordination between branches internally.

The main findings of the Management Review are detailed in the following table.

2004-2006 Sustainable Development Management Review Findings

- The understanding of sustainable development has progressed within the department as most interviewees had adequate knowledge with respect to Implementation (80%), Management Review element (67%), Policy-setting element (60%). Fewer had knowledge of the Checking and Corrective Action element.
- The current strategy shows that twice as many targets are on track for completion as compared to the previous two strategies at a similar point in the year.
- All progress information was accessible at the time of the management review. Coordination across TC was an improvement over the findings from the previous review.
- Commitment of resources and emplacement of the structure to deliver on its promises was evident.
- Consistency in internal reporting has been demonstrated as all 173 targets were tracked, which is an improvement over the findings from the previous review.
- Commitment to partnering – in the course of planning and implementing the SDS, the provision of a detailed website for the environment operations and SDS program was effective in moving information horizontally.
- The SD Program requires a formal endorsement of an ISO-compliant policy, with clarification of the relationship between sustainable development and an environment vision and policy statements.
- Inclusion of examination of views and reports from organizations may provide a broader context for Transport Canada to determine the extent to which their efforts are consistent, complimentary, or otherwise moving Canada towards sustainability.
- The SD Management System is not as formally organized as the Environmental Management System (EMS). The EMS follows ISO 14001 fairly closely, while the SD management system does not do so as of yet.
- The lineages between goals, objectives and targets could be clearer. Transport Canada's Challenges and Commitments could more clearly express long-term results to be achieved.
- A lot of activity-based results cause a demand on performance-measurement resources. It may be better to focus on assuring desired outcomes are being achieved than the details of whether particular tasks have been done.

What the department did well

Each successive strategy has provided Transport Canada with an opportunity to build on the success and lessons learned from the previous strategies. The management review has highlighted specific areas of best practice for the 2004–2006 Sustainable Development Strategy.

The data gathered from interviews, document review (internal documents), and progress tracking shows that Transport Canada is fully engaged in the planning and implementation the sustainable development strategies.

Overall, trends indicate that Transport Canada has shown consistency in the completion, tracking of targets, and internal reporting.

Coordination across the department was evident as effective communication and information sharing was noted among Transport Canada groups, regions, and partners. A detailed website for the environment operations and SDS program

proved effective in the movement of information horizontally. All progress information was available at the time of the management review.

A commitment to resources and an ongoing effort to implement targets and improve the management system were apparent.

Lessons learned: Opportunities for improvement

The Management Review rendered 14 recommendations regarding the effectiveness of the SD management system and the planning of the next strategy, which are documented as follows:

1. Develop and obtain senior management approval of an ISO-compliant SD Policy.
2. Clarify and communicate the relationship between SD Policy and all other environment and SD policy statements – presumably all other policies should be subordinate to the SD Policy.
3. Apply the SD lens to program delivery elements to uphold the requirements of SD Policy.
4. Adopt or refine previously identified SD challenges.
5. Write future SDS challenges, commitments, and targets as outcome-based, achievable, and measurable, and label them as goals, objectives, and targets.
6. Write future SDS targets that are no less than outputs, but preferably outcomes, reserving all activities (and their inputs and outputs) for an SDS Action Plan.
7. Adopt quantified performance measures with clear and logical links to targets.
8. Develop an SDS Action Plan, including accountabilities and funding allocations, to achieve the targets.
9. Design and deliver an educational campaign for those program activities that fall under the auspices of the SDS and environmental operations.
10. Improve reporting on SD in the *Departmental Performance Report* (DPR), including details on the outcomes achieved.
11. Adopt criteria to track targets across SDSs.
12. Track the degree to which partner assistance is being provided on targets.
13. Revise the scope of the SD Management Review to include external sources of opinion of the effectiveness of Transport Canada's sustainable development efforts.
14. Log the status of implementation on each recommendation and communicate corrective action to stakeholders as it is completed

Transport Canada's third strategy was successful in building on and learning from the first two strategies. However, continuous improvement is an important goal of the strategy and as such the fourth strategy attempts to move beyond the previous strategies by focusing key theme areas where the department can make a difference and by reducing the number of commitments and targets in order to zero in on priority areas.

Defining the commitments, targets and performance measures remains an important area for improvement. Commitments must be relevant, clear and achievable. Better linkages between commitments, targets and performance measures are needed. The performance measures should also be strengthened, so that they are more results-oriented and meaningful. These were important considerations in the development of the action plan for this strategy.

To improve the implementation of the strategy, the department will attempt to strengthen its internal training and tools for sustainable development. Part 7 of this strategy outlines the department's commitments related to its sustainable development management system. The department will follow-up on the recommendations of the Management Review. The recommendations put forth from the review were beneficial in the development of the current strategy. This fourth strategy attempts to provide a result-based approach to achieve our long-term vision for sustainable transportation, while concentrating on a smaller number of achievable commitments.

Appendix D: 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.

SOCIAL PRINCIPLES

Safety, security and health:

Transportation systems should first be designed and operated in a way that protects the safety and security 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.

Glossary

Active transportation:

Non-motorized transportation including travel modes such as walking, cycling, skating, skiing, and manual-powered wheelchair.

Adaptation to climate change:

Involves making adjustments in our social and economic activities to enhance their viability and reduce their vulnerability to climate change. This includes measures to reduce or avoid negative impacts of climate change, and also the steps taken to maximize new opportunities.

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 (hybrid, electric, gasoline and diesel direct injection engines), new body construction and innovations (use of lightweight and/or recyclable materials, small size/dimensions and aerodynamics), lightweight metals and composites, and advanced emission control devices and fuels.

Ballast water:

Water pumped into the bottom of a ship to ensure its stability, especially in rough seas. Ballast water exchange can lead to the introduction of non-indigenous aquatic organisms and pathogens can be harmful to existing ecosystems; an introduction of either has the potential to effect both negative and irreversible changes in biodiversity.

Climate change:

Human activities are altering the chemical composition of the atmosphere through the build-up of greenhouse gases that trap heat and reflect it back to the earth's surface. This is resulting in changes to our climate, including a rise in global temperatures and more frequent extreme weather events.

Cost internalization:

See Full-Cost Accounting.

Efficient transportation:

An efficient transportation system is one which allows the maximum movement of people and goods, at the lowest economic, environmental and social cost.

Environmental Management System:

An Environmental Management System (EMS) is 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.

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.

Green commute:

Transport Canada's Green Commute program demonstrates alternatives to single occupancy vehicle trips in commuting to and from work. Alternatives include public transit, active transportation, car pooling and telecommuting.

Green procurement:

Green procurement is the integration of environmental considerations – alongside quality, performance, price and availability – into the procurement process, from planning to final disposal. Green procurement means that environmental impacts of the goods we procure have been appropriately considered using techniques like total life cycle costing.

Greenhouse gases:

Greenhouse gases are gases that absorb and trap heat in the atmosphere and cause a warming effect on earth. Some occur naturally in the atmosphere, while others result from human activities. Greenhouse gases include carbon dioxide, water vapor, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrofluorocarbons and perfluorocarbons.

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 transportation:

Intermodal transportation is the use of two or more modes to move freight or passengers from origin to destination. For freight, an intermodal movement includes all aspects of the supply chain involved in the movement and transfer of goods under a single freight bill. For passengers, intermodal movement means a seamless trip from origin to destination using more than one mode.

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 166 Member States, including Canada.

ISO 14000:

ISO 14000 is 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 System.

Issue scan:

An issue scan is an assessment of a department's activities in terms of their impact on sustainable development.

MARPOL Annexes:

The MARPOL Annexes were established at an international convention on marine pollution, with MARPOL Annex VI being intended to reduce the discharges of air pollutants from ships.

National Advisory Group:

A committee created in 1996 by Transport Canada, to advise the department on the development of its 1997 strategy. Composed of transportation and environmental experts, the National Advisory Group was re-established in 2000, 2003, and 2005 to advise Transport Canada on the development of the department's second, third and fourth sustainable development strategies.

Non-renewable resources:

Non-renewable resources are natural resources that are in fixed supply (i.e. minerals, oil, coal).

Performance measure:

An indicator that provides information (either qualitative or quantitative) on the extent to which a policy, program or initiative is achieving its outcomes.

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.

Shortsea shipping:

Generally refers to the movement of cargo and passengers by water, between points situated relatively closely to one another. This usually includes domestic shipping along coastlines, to and from nearby islands, or within lakes and river systems, but may also have an international element.

Sulphur emission control areas:

Areas where ships must reduce their sulphur emissions below a set threshold level.

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 federal government department is required to submit to Parliament every three years, beginning in 1997. It outlines the department's 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 oversees the development of the department's sustainable development strategy, and provides a forum for sharing information and practices concerning sustainable development across the department.

Transportation Demand Management (TDM):

A variety of strategies to influence travel behavior by mode, cost, time or route, in order to reduce the number of vehicles and to provide mobility options. TDM strategies are often applied to achieve public goals, such as reduced traffic congestion, improved air quality, and decreased reliance on energy consumption. TDM strategies are also used by employers to reduce overhead costs, enhance productivity, and address other business problems such as employee turnover.