

C A N A D A ' S

# TRANSPORTATION

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## CHALLENGE

**DOWN TO EARTH CHOICES ON THE DRIVE TOWARD A HEALTHY ENVIRONMENT**

In less than 100 years, we've gone from horse and buggy to 14 million cars on Canada's roads. Along the way, the car has become a way of life and an integral part of the economy. In such a short time the car has changed the way we do business, get to work, plan our cities, organize our family schedules and even the way we conduct our courtships!

And, in less than 100 years, the car has come to have a major impact on our environment and our health.

While we can't return to the horse and buggy, we can understand the issues and choices in Canada's Transportation Challenge.

This issue booklet looks at the opportunities we have for reducing the impacts of the car on our health, our environment and our wallets and provides a sampling of efforts underway across the country to create a more sustainable transportation system.

We also want your views about what should happen next, what you're prepared to do and what you think decision-makers should be doing.

You can work through the booklet on your own or use it as the basis for a discussion with your family, your community group or your political representative. Whatever way you use it, we'd like to hear from you. Please take a minute to fill out the "CHOICES" section on the inside flap and mail it in. Summaries of the public's views on this issue will be shared with decision-makers in governments, with those in related businesses and industry and with non-government organizations and community groups.

### THE TRANSPORTATION CHALLENGE:

**Are we driving in circles?**

With more than one car for every two Canadians, each car travels an average of 16,000 kilometres a year. Each car, on average, pumps out over four tonnes of air pollutants a year. Simply put, the more we drive, the more we pollute. It becomes a vicious circle.

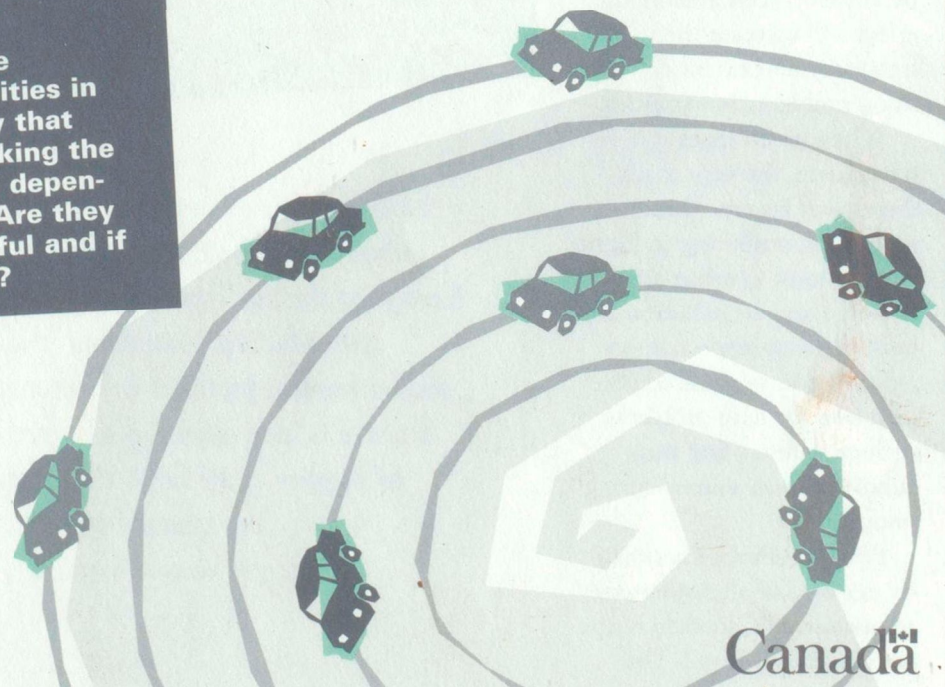
leads to an enhanced greenhouse effect and accelerated climate change. Unless carbon dioxide emissions are cut, the effects of climate change will be felt in less than 50 years. That's less than a lifetime away, and many scientists say we're already feeling the effects.

- Dependency on the car leads to more automobiles on the road. More cars lead to more noise and congestion and busier streets in our communities.
- The more we drive, the more smog we create. Smog and air pollution aggravate respiratory conditions. Children and adults with heart or lung problems, especially asthma, are more sensitive to air pollutants. When pollution levels are high, their conditions can worsen. The effect of high smog periods can be directly measured in increased hospital admissions.
- The more we drive, the more carbon dioxide goes into the atmosphere. Increased carbon dioxide
- More cars lead to demand for more roadways, lower parking rates and low density housing developments far from the city or town centre.
- Low-density housing leads to urban sprawl, increased use of the car and longer trips. At the same time, costs for maintaining a transit system that must serve outlying areas are very high and uneconomical, creating an even greater dependency on our automobiles.

The challenge is to break the circle and start making down to earth transportation choices.

**QUESTIONS TO CONSIDER:**

1. How heavily is the car relied upon in your community? What alternatives are there? Are they used? How many of your neighbours live without a car and how do they manage?
2. What challenges or stresses are there on the transportation system in your community?
3. What positive trends do you see in your community toward reducing dependence on cars?
4. Are there communities in your city that are breaking the circle of dependence? Are they successful and if so, why?



# CHALLENGE # 1 : MAINTAINING A HEALTHY ENVIRONMENT

## Climate Change

Of all the problems linked to vehicle emissions, climate change is one of the most serious.

For more than 150 years, scientists have known that small concentrations of greenhouse gases in the Earth's atmosphere are essential to maintaining the conditions supporting life on Earth. These gases trap the sun's heat near the Earth's surface. Without this natural greenhouse effect, the heat would escape into space and the Earth would be too cold to support life.

However, human activities, primarily the burning of fossil fuels, are increasing the concentrations of these gases in the atmosphere, causing what is known as the "enhanced greenhouse effect".

Concentrations of carbon dioxide have increased significantly over the past 200 years. In Canada, as much as 33% of these emissions come from cars and light trucks. If we keep going at this rate, concentrations of carbon dioxide in the atmosphere may double during the second half of the next century, causing our climate to change significantly and to change more rapidly than at any time in history.

## Smog

Canada's most serious air quality problem is ground-level ozone, the main ingredient in smog. Ground-level ozone is formed when oxides of nitrogen meet with hydrocarbons in sunlight. When mixed with hydrocarbons and particulates, the result is the yellowish-brown cloud hanging over cities on summer days. Up to three-quarters of the pollutants that combine to form ground-level ozone in urban areas come from automobiles.

For a "double whammy", scientists predict that higher urban air temperatures caused by the enhanced greenhouse effect will increase the frequency and extent of smog problems in our cities.

When green space is paved over, the very roads themselves become "heat islands", contributing to higher temperatures in urban areas.

Smog and air pollution are health threats, especially to children and to those adults with heart or lung problems. Asthma sufferers find their conditions can worsen during smog alerts.

Pollution Probe says that six per cent of all respiratory admissions in Canadian hospitals are smog-related. The

## A FEW FACTS ABOUT CLIMATE CHANGE

### WHAT MIGHT CLIMATE CHANGE MEAN TO CANADA?

- ▼ Rising sea levels would threaten buildings, roads and sewage systems in built-up coastal areas. Salt water could contaminate drinking water supplies.
- ▼ Habitats would change, and while we might see some new animals and plants migrate northward, many of our native species might struggle for survival, and lose, affecting Canada's biodiversity.
- ▼ Altered snow and ice conditions would disrupt navigation, winter sports and tourism in Ontario and Quebec. Changes in timing of spring break-up could affect flooding.
- ▼ A longer and warmer growing season in Canada might allow for higher-yield crops and these could be grown farther north, if soil conditions permit. But climate change will also alter precipitation patterns. Predictions are for more precipitation in northern Canada and less in the south—bringing more frequent and more severe droughts to currently productive southern Canadian farm lands.
- ▼ With more drought, forest fires and severe storms, the strain on our economy would be in the billions of dollars. It would cost less to heat our homes, but more to cool them.
- ▼ Greater variability of river runoff would affect hydroelectric power production.

American Lung Association reports air pollution from motor vehicles causes \$40 to \$50 billion (U.S.) in annual health care expenditures, and causes as many as 120,000 premature deaths.

The highest concentration of smog in Canada is in the Windsor to Quebec City corridor, in the Lower Fraser Valley of British Columbia and in the southern portion of New Brunswick.

### QUESTIONS TO CONSIDER:

1. To what extent is your local environmental health affected by cars? Would you say it's a serious problem in your area? Is it getting better or worse?
2. Have any measures been taken to ease some of these problems?
3. What options exist in your community in the short- and mid-term to reduce the environmental impacts of the car?
4. Is there a municipal environmental strategy? How can it be influenced? What role have community groups played in developing that strategy?

*Scientists are discovering more and more about how the Earth's climate works. Studying the past and peering into the future is producing compelling evidence that a human factor is influencing climate. Science is also showing us what is likely to happen if we don't stop changing the atmosphere.*

ENVIRONMENT CANADA

## SIDE EFFECTS

### THESE ARE SOME OTHER "SIDE EFFECTS" FROM TRANSPORTATION.

- ▼ Ground-level ozone attacks the leaves of plants, reducing growth and crop yield. In fact, the Worldwatch Institute estimates crop damage by ground-level ozone in the U.S.A. to cost about US \$5 billion each year.
- ▼ Air conditioning systems in cars contain CFCs (chlorofluorocarbons), which are linked to another environmental problem: the thinning of the upper ozone layer. CFCs that leak from vehicle air conditioners are the third most important source of CFCs in the atmosphere.
- ▼ Emissions from transportation also contain unhealthy carbon monoxide and particulates. These both present a challenge for those with respiratory problems.

- ▼ Loss and disruption of agricultural land, wilderness areas and wetlands result from construction and maintenance of roadways.

- ▼ Time spent in traffic jams contributes to stress, which has a major health impact.

- ▼ Transport Canada's Road Safety 1994 Annual Report indicated that 2,763 vehicle occupants, 423 pedestrians, 84 cyclists, and 182 motorcyclists were killed in transportation accidents in 1993.

*"Our medium- and long-term prospects for health are linked to the health of the environment."*

HEALTH CANADA

# CHALLENGE # 2 : CAN WE AFFORD OUR CURRENT SYSTEM?

A recent study by the Canadian Automobile Association put the average annual cost of owning and running a car at \$7,000. However, gasoline taxes, licensing and registration fees simply do not pay for all of the needs of the transportation system. The yearly price tag of running a car is closer to \$10,000 if hidden costs are factored in. For instance, road building, maintenance, snow removal, traffic control, emergency services, tax losses from land paved over for roads, company parking spots, the free lot at your nearby mall, accidents and related health care — the list goes on. It has been estimated that only \$4.00 out of every \$9.00 spent on transportation infrastructure is paid by drivers.

One study has estimated these so-called hidden costs to our economy at \$34.2 billion a year. Of that figure, the largest amount is the cost to the environment at \$15 billion!

The question is: how much can we afford? A bigger question is: how much can the economy and the environment afford?



### QUESTIONS TO CONSIDER:

1. What major investments have been made over the past 20 years in your community's transportation system? What proportion was aimed at cars versus other transportation options?
2. Does your community have a municipal transportation strategy? Does it include a mix of transportation options?
3. Are any attempts being made in your community to have motorists pay more of the "hidden" costs of the automobile?
4. What are your personal direct costs of owning your car(s)?
5. How do the direct costs of driving to work compare with transit in your community?

## A FEW FACTS ABOUT COSTS

- ▼ The personal cost of using a car can be as much as \$600 per month. Eliminating a family car could leave more money to apply to a mortgage, RRSPs or other investments.
- ▼ In dollars and cents, licence and fuel taxes don't pay for the full cost of the transportation system. Paying for our system of roads and highways requires an extra \$4.6 billion annually from general tax revenues. Automobiles are more heavily subsidized than public transit.
- ▼ Traffic congestion is also costly. The Canadian Urban Transit Association estimates that the time lost in traffic jams amounts to \$0.055 per vehicle-kilometre. When you multiply this figure by the total number of kilometres travelled by vehicles in a year, the cost to the economy is \$4.125 billion per year.
- ▼ Insurance claims under private passenger car insurance policies from Ontario alone were \$3.231 billion in 1993.
- ▼ The indirect costs of the car from its contribution to climate change could be significant. Insurance companies are already worried about the potential damage from higher water levels caused by more severe weather events due to climate change.

### What Are Our Options?

If motorists paid the actual costs associated with car use, they would be in a better position to make realistic and sustainable choices among the transportation options available to them. When you include all the hidden costs — the ones users are not directly paying for — it adds up to a lot of money for everyone. If presented with the full bill for driving a car, you'd probably use it less!

What are the options for change so that users pay realistic costs for using the automobile and are at the same time encouraged to find alternatives? Here are a few examples:

### Peak Time/City Core Users

- less expensive parking for those who carpool;
- tolls for single-occupancy vehicles (SOVs);
- tolls to enter the downtown core during high-peak periods;
- increased transit service to encourage more riders.

### General

- higher gasoline prices to reflect the cost of providing transportation infrastructure;
- increased cost of downtown parking, and reduction in employer-subsidized parking;
- vehicle inspection and maintenance clinics, with a requirement that vehicle owners have their cars pass annually;
- a surtax for those purchasing a second car;
- an adjustment in land tax to reflect the increased cost of providing transportation to outlying areas and to encourage settlement in the city core, where a car is needed less.

In a recent Canadian television program, 75% of those responding to a telepoll question supported the principle of user-pay, shifting the indirect costs of driving from general taxation to fuel taxes (46% in favour) or highway and bridge tolls (29% in favour).

*"I don't think people make the link between them driving a car and the cost associated with maintaining the transportation infrastructure."*

FEDERATION OF CANADIAN MUNICIPALITIES

# CHALLENGE # 3 : COMMUNITY PLANNING

## Existing Communities

Look around you on your way to or from work during rush hour. What do you see? Too many cars travelling the same road, at the same time. Traffic jams, motors idling, tempers flaring. If you look around at other commuters, you will see most of them are alone in their cars. Heavy traffic and major roads passing through existing communities can divide neighbourhoods and reduce the safety of the streets for pedestrians, cyclists and children. As well as reducing contact between neighbours, this can also mean residents are forced to use cars more within their neighbourhoods for safety reasons.

### What Are Our Options?

Achieving a more sustainable transportation system for our existing communities involves many different changes:

- traffic calming (slowing and reducing traffic);
- finding safe routes to walk to school;
- adapting neighbourhoods to be more pedestrian- and cyclist-friendly;
- setting up ridesharing and carpooling programs;
- forming transit-user groups to increase service and ridership;
- improving the integration of different modes of transportation, i.e. bike racks, pedestrian walkways, park-and-ride lots, etc.;
- zoning changes that permit a more integrated urban plan, reduced traffic and slower urban growth. For example, residential development can be encouraged in city centres or traffic-generating developments can be limited.

A good example of changes in an existing community is the city of Calgary. The city wants to reduce the need for cars by building town centres at two ends of the city and increasing transit links between downtown and the suburbs. Another part of the plan is to increase the cost of downtown parking, as well as getting companies to stop giving their employees free parking.

Increased cycling and walking are natural transportation choices because they are already popular with Canadians as recreational activities. And both cycling and walking have a positive impact on our physical health.

## New Communities

Urban growth in some cities has resulted in seemingly endless suburban areas, where it's difficult to know when you've left one municipality and entered another. The main way of getting around in these areas, of course, is by car. Planners are beginning to create new visions for communities to become less auto-dependent.

### What Are Our Options?

**1. Town-Centre Approach**  
Picture a suburban centre with the town hall roughly in the middle. Now, add extra room for different kinds of housing within walking distance, along with some high-rise apartment and office towers. Add room for businesses, retail stores, and leave space for other community facilities, such as a public recreation centre or churches and even a performing arts studio. The new centre will also have more transit connecting it to downtown.

What you will have after doing all of this is something closer to what a town centre might look like.

This model can be used in the suburbs and, if enough different businesses are located there, can save people from having to go downtown to work. Another benefit of the town-centre approach is that it can easily fit into existing areas without changing zoning laws too much.

*"Right now, we can start moving to retrofit communities with things like safe cycling lanes, better sidewalks, walking paths, better lighting at night ... It's something that can be done at the community level. You don't have to go to the big picture."*

HEALTH CANADA

## 2. Main-Street Approach

Think of a main street in a small town, or a streetscape in a large Canadian city. Many Canadian cities have such people-friendly streets already with wide sidewalks, trees and many attractions within a short stretch of road. There are food stores, drugstores, restaurants, walk-in health clinics and other businesses. Housing is both above shops on the main street and on side streets. Urban planners think one way to reduce our dependency on cars is to create more of these main streets.

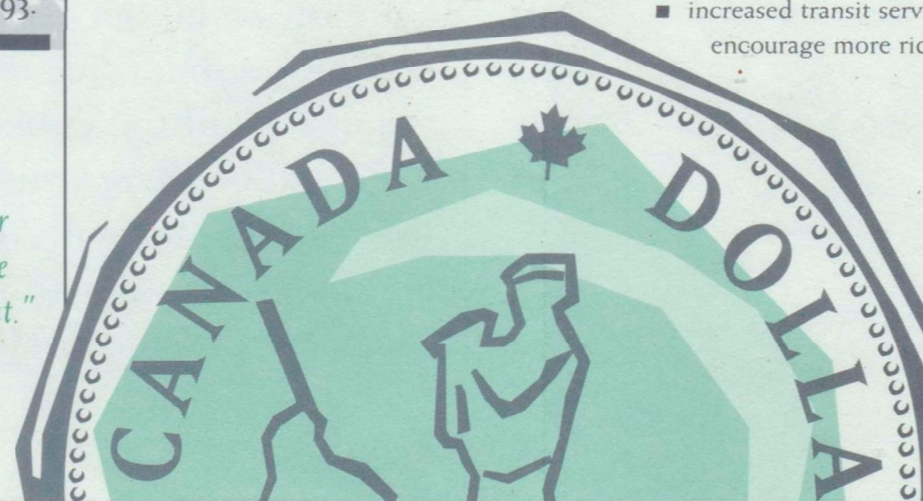
In this model, people who live close to a main street don't have to take their cars to the corner store, the dry cleaner or the neighbourhood restaurant. Because of the large numbers of people living and working within the neighbourhood, public transit will always be available when needed.

### QUESTIONS TO CONSIDER:

1. What could you do in your neighbourhood over the next 6 months to encourage people to use alternatives to the car? What could be done over the next 5 years? 10 years?
2. Have alternative forms of transportation been considered in the planning of new residential and commercial developments in your community over the past 20 years? Do you see any examples of the town centre or main street approach? If so, do they work?
3. How could residential or commercial development now being planned be altered to encourage alternative forms of transportation?

## SUSTAINABLE TRANSPORTATION

Experts talk about the need to create a "sustainable transportation" system. What do they mean? Making transportation more sustainable would involve a number of things. In it, the system would use renewable fuels. It would cost less than the current system and we would always know that we could pay for the system in the future. Sustainable transportation would meet present and future transportation needs and be accessible by all.



# SOLUTIONS

## SOLUTIONS

The transportation challenge lies in reducing the impacts of the automobile, while continuing to enjoy the advantages it offers. It's a difficult dilemma, but there are solutions. These solutions lie in big and small changes in our communities, in how we get to and from work, and in what we're willing to pay as transportation users.

All across this country, communities, individuals, non-government groups and governments are taking up the challenge of decreasing our dependence on the automobile. People are discovering that reducing the impact of the automobile on the environment is about making down-to-earth choices for healthy neighbourhoods.

### Individual Solutions

As individuals we can do a lot to decrease the use of our vehicles and save money, too:

- next time you move, consider moving to an area that is closer to your work, school and other activities and would let you and your household reduce car use;
- give up the second car – it frees up significant money for investing in your mortgage, or elsewhere, and encourages family members to try transportation alternatives;
- think about it before you use your car – do you really need to?
- use public transit a few times more each week;
- try car pooling, whether for work or to take your kids to their soccer practice;
- think about whether some of your commuting or short trips are absolutely necessary. For example, can you buy groceries every two weeks instead of every week? Can you "chain" your errands to the post office, dry cleaners and shoe repair? **It could save time, too!**



- try a group walk to school (a walking school bus with parents taking turns at supervision) as an alternative to the school bus.

We can also look at the way we use our vehicles so that they are less polluting:

- when you buy a new vehicle, choose one that is as fuel-efficient as possible, and remember mini-vans and light trucks usually don't get good mileage;
- follow the recommended maintenance schedule in the owner's manual;
- keep your car well tuned and have your emission control system checked at least once a year;
- don't idle: turn off your engine while waiting outside the shopping mall or ice rink;
- only use your car's air conditioner when it's really necessary – it increases fuel usage significantly – and have it serviced regularly;
- don't overfill your gas tank – the first time the pump stops, don't restart it (spillage is a major source of ozone pollution);



- drive the speed limit and avoid sudden starts and stops. Driving at moderate speeds uses less fuel and saves you money.

### Community Solutions

Communities, non-government groups, the private sector and governments have a role to play in more efficient transportation.

- Many neighbourhoods, for example, have started programs to reduce the amount of traffic and make roads safer for pedestrians and cyclists. The program "From Car Culture to Green Neighbourhoods" has started pilot projects in five Toronto neighbourhoods to help reduce car dependence and get residents using other forms of transportation.



## MAKING CHOICES

WE HAVE ALREADY MADE SOME IMPORTANT CHOICES ON THE ROAD TO MEETING CANADA'S TRANSPORTATION CHALLENGE.

**1) Common goals and common targets:** The FCM 20 % Club is a good example. The club is made up of close to 40 Canadian municipalities who have committed to reduce greenhouse gas emissions in their communities by 20 % of 1990 levels by 2005, or within 10 years of joining the club. The Government of Canada is committed to co-operating with stakeholders to reduce greenhouse gas emissions to 8% below 1990 levels between 2008 and 2012.

### 2) Greater private-sector and non-governmental organization participation:

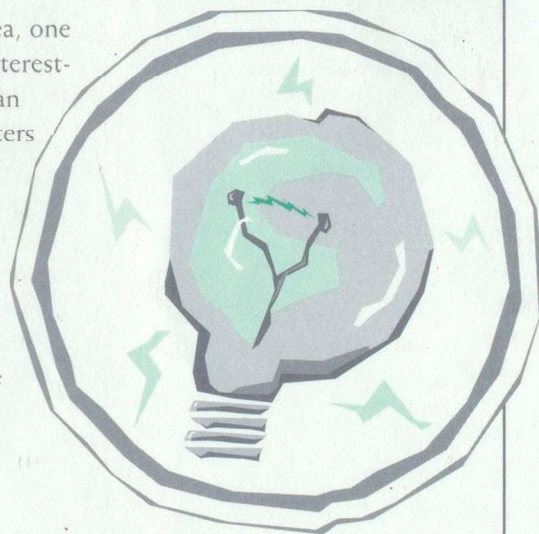
Governments' role is changing. More and more, the private-sector is becoming a partner with government. Non-governmental organizations also have a key role to play. Already, several such groups, such as the Transportation Association of Canada, the Canadian Institute of Planners and the Federation of Canadian Municipalities, have come together to work out a vision for better transportation and how to achieve it.

### 3) Greater participation of Canadians in planning:

Most importantly, Canadians need to be involved in the planning process to tell their governments what they want and what makes sense for them. Projects such as this issue booklet are a start to finding out what is most important to Canadians about transportation, what options they want to follow to make transportation more sustainable and informing Canadians of why this is an important issue.

**What choices will you make?** Please don't forget to answer the questions on the inside flap and send them back to us at Environment Canada.

- In the Vancouver area, one individual used an interest-free loan to start a van pool to take commuters downtown. He now has 95 vans! And in Halifax, the Metro Moves program provides parking sites for out-of-town commuters who take transit into town.



*"Reducing the number of short trips we take by car takes planning and commitment. Using environmentally friendly alternatives, like walking or cycling, we also benefit from improvements in the quality of life for ourselves and our communities."*

GO FOR GREEN

- Employers are reducing the burden of the transportation system by providing showers and bicycle racks for people who walk or cycle to work and supporting car pooling initiatives.

This booklet has been prepared by Environment Canada's EcoAction 2000 Program. To order more copies please call 1-800-668-6767. We would like to thank the following groups for their contribution:

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Go For Green

Health Canada  
Transport Association of Canada  
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Go for Green has produced a companion piece entitled "Developing Communities for Active Transportation." To order, please call (613) 562-5313 or fax (613) 562-5314.



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