

Sustainable Transportation Strategy

For the Department of Transportation and Infrastructure
Renewal



2008

SUSTAINABLE TRANSPORTATION – AN OVERVIEW

Transportation is linked to all aspects of life in Nova Scotia. Our economic and social well-being depends on transportation systems that are safe, clean and able to efficiently move our people and goods. Current transportation trends are considered unsustainable, and pose a direct threat to our environment and economic and social future. Altering these trends will not be an easy task and will require the cooperation of all stakeholders: government at all levels, industry and individuals.

Defining Sustainable Transportation

According to the Centre for Sustainable Transportation, a sustainable transportation system is one that:

- Allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health and with equity within and between generations;
- Is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy; and
- Limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise.¹

Sustainable Transportation Trends in Nova Scotia

The impacts of transportation are economic, social and environmental and can include: traffic congestion, infrastructure costs, mobility barriers, depletion of non-renewable resources, human health, community cohesion, air pollution, climate change, and habitat loss.

Transportation patterns show that Nova Scotia and Canada, like many developed countries, have become increasingly automobile dependent. Trends show higher levels of per capita vehicle ownership and use and declining transportation options. Automobile ownership is almost a prerequisite for rural life, where the cost to provide public transportation services is often considered prohibitive.

In 2005, transportation accounted for 27% of Nova Scotia's greenhouse gas (GHG) emissions; this proportion is expected to remain constant through 2020. The transportation sector is the second largest contributor to GHG emissions in the Province.

According to a GPI Atlantic's 2006 report *The GPI Transportation Accounts: Sustainable Transportation in Nova Scotia*² many current Nova Scotia transport trends are leading away from sustainability. Per capita vehicle travel, consumer expenditures, energy consumption, greenhouse gas and pollution emissions, land use sprawl, and traffic congestion are all high and either steady or increasing, while transportation options for non-drivers seems to be declining due to transportation and land use trends.

¹ Centre for Sustainable Transportation. *What Is Sustainable Transportation?* Online. <http://cst.uwinnipeg.ca/> (2006).

² The full report can be accessed online at: <http://www.gpiatlantic.org/pdf/transportation/transportation.pdf>

The GPI report also indicates some positive trends and opportunities for sustainable transportation in Nova Scotia. Changing consumer preferences and planning practices support more sustainable transport and land use patterns, including urban redevelopment, demand for more accessible residential locations, improved walking and cycling conditions, reinvestment in public transit and other programs that encourage the use of alternative modes of transportation (e.g. HRM's MetroLink service).

Federal Programs and Policies for Sustainable Transportation

In late 2006, Environment Canada announced that it would regulate an annual average renewable content of 5% ethanol in gasoline by 2010 and 2% renewable content in diesel fuel and heating oil by 2012.

Also in 2006 Transport Canada released its fourth *Sustainable Development Strategy* for 2007-2009. The strategy is structured around the following seven strategic challenges: Encouraging Canadians to make more sustainable transportation choices; Enhancing innovation and skills development; Increasing system efficiency and optimizing modal choices; Enhancing efficiency of vehicles, fuels and fuelling infrastructure; Improving performance of carriers and operators; Improving decision-making by governments and the transportation sector; and Improving management of Transport Canada operations and lands.

Other federal programs and policies delivered by Transport Canada and related to sustainable transportation include:

- **Moving on Sustainable Transportation (MOST)**, a program to support projects that produce the kinds of education, awareness and analytical tools needed to make sustainable transportation a reality;
- **Advanced Technology Vehicles Program** which provides the driving public with information about advanced fuel-efficient technologies that are currently or will soon be available in vehicles sold in Canada (i.e. advanced powertrains, materials, chassis designs, emission controls, fuels, etc.);
- **Fuel Consumption Program**, which was implemented in 1975 and is aimed at promoting public awareness of vehicle fuel efficiency, monitoring the fuel consumption of the Canadian new vehicle fleet, encouraging improvements in fuel efficiency of the new vehicle fleet, and providing incentives to encourage the motor vehicle industry to increase the production of vehicles which operate on alternative fuels;
- **Urban Transportation Showcase Program** which supports the development and integration of strategies, transportation planning tools and best practices to reduce GHG emissions. The program also demonstrates, measures, and monitors the effectiveness of a range of integrated urban GHG strategies and evaluates the effects of these strategies for other important policy objectives;
- **Environmental Management System** which ensures compliance with applicable legislation and regulations, promotes conformance with federal government and Transport Canada policies and practices, ensures environmental clauses in lease agreements are being met and that operations are consistent with good environmental practices and sustainable development objectives; and
- **Motor Vehicle Fuel Efficiency Initiative** which has an objective of improving light duty vehicle fuel efficiency by 25% by 2010.

A variety of other programs are delivered by Natural Resources Canada and Environment Canada, including public awareness initiatives providing information on idling, promoting active transportation, identifying provincial and federal incentives and rebates, and encouraging Canadians to consider fuel efficiency and consumption in their personal vehicles.

In 2007 the federal government announced several federal funding programs designed to combat greenhouse gas emissions and air pollutants resultant from transportation activities.

The *ecoFreight* program, aimed at reducing the environmental and health effects of freight transportation, includes \$61 million funding over six years for the following initiatives: National Harmonization Initiative for the Trucking Industry; *ecoENERGY* for Fleets; Freight Technology Demonstration Fund; Freight Technology Incentives; Partnerships on Freight; and Marine Shore Power Program.

The *ecoMobility* program is aimed at providing Canadians with more transportation choices. With up to \$10 million available in funding, the program will help reduce urban passenger transportation emissions by encouraging increased transit ridership and the use of other sustainable transportation options. The initiative will help cities develop policies, programs, and services that encourage people to choose more environmentally friendly transportation options, such as the bus or car-pooling. Funding may be available for collaborative research, development of professional resources, implementation of cost-shared projects and dissemination of information.

Further, the 2007 federal budget included several measures aimed at greening transportation in Canada: \$2 billion over 7 years to support the production of renewable fuels including investment in establishing large-scale facilities for the production of next-generation renewable fuels (ethanol, biodiesel); a Vehicle Efficiency Incentive structure, including a rebate for the purchase of a new fuel-efficient vehicle and a Green Levy on new fuel-inefficient vehicles; \$36 million over two years for “scrappage” programs to retire older vehicles; and the extension of the public transit tax credit to electronic fare cards and weekly passes used on an ongoing basis.

Programs and Policies for Sustainable Transportation in Nova Scotia³

There is little doubt that creating and maintaining a transportation system that is truly sustainable is challenging. Action can and must be taken by all levels of government, industry, and individuals to meet this challenge. Further, given the complex nature of the issues, shared jurisdiction, and the large number of stakeholders involved, collaboration is critical to developing and maintaining a sustainable transportation system.

The federal government is moving forward with its sustainable transportation initiatives and there are unprecedented opportunities for the Province of Nova Scotia to take advantage of federal funding programs to address its own sustainable transportation goals.

As a small jurisdiction, there are certainly limitations on what the Province could effectively accomplish with respect to sustainable transportation. For this reason, it is important for the Province to collaborate with

³ An inventory of programs and policies in other Canadian jurisdictions can be found in *Appendix A: Sustainable Transportation Activities in other Jurisdictions*.

Transport Canada and other provinces/territories and engage in national initiatives aimed at increasing sustainability in our transportation system.

The Province has taken some important steps towards addressing environmental sustainability. The Province's *Environmental Goals and Sustainable Prosperity Act (2007)* commits the government to forming regulations regarding climate change, energy conservation and energy efficiency, including the following:

- Reduce GHG emissions in the Province to 10% below 1990 levels by 2020, representing a reduction of 35% below projected 2020 levels;
- Adopt air emissions standards for GHG gases and air pollutants from new motor vehicles, such as the standards adopted by the State of California, by the year 2010; and
- Develop and implement a sustainable procurement policy for government by 2009.

In June 2007, Conserve Nova Scotia announced \$250,000 in provincial investment in the Ecology Action Centre (through the *Green Mobility Program*) to expand initiatives in transit, ride-matching, and active transportation. Approximately 65% of this funding will be directed to an infrastructure fund to assist towns, municipalities, band councils and community groups with community-based sustainable transportation projects.

A further \$35,000 was provided to Transport 2000 Atlantic for the *Sustainable Rural Mobility Research and Outreach Project* which will help identify opportunities for communities to establish, sustain and promote rural and regional public transportation services.

In 2007, the Province also announced a new fleet policy for provincial vehicles aimed at reducing fuel use and emissions and educating employees to drive more efficiently.

In late 2007, the Province launched the *Ecotrust for Clean Air and Climate Change*. The program has two components: the *Ecotrust Municipal Program*, worth \$7.5 million; and the *Ecotrust Environmental Technology Program (ETP)*, worth \$9.5 million. Each program will invest directly into projects by Nova Scotia municipalities, businesses, institutions and organizations from now until March 31, 2010. The funds come from Nova Scotia's portion of the Canada ecoTrust for Clean Air and Climate Change.

The *Municipal Program* will assist municipalities in reducing their GHG and air pollutant emissions and build capacity in municipalities to enable further emissions reductions. Grants will be awarded in the following project categories: Corporate Capacity Building; Corporate Action; and Community. The ETP will support organizations involved in environmental technologies and innovations that reduce GHG emission and other air pollutants and build capacity for further emission reductions in the province. Grants will be awarded in the following project categories: Research and Design; Technology Adoption and Deployment, Pilot and Demonstration Projects; and Intellectual Property/Marketing.

The Department of Transportation and Infrastructure Renewal (TIR) is already working to incorporate sustainable transportation measures into its operations. The department's current sustainable transportation practices will be outlined in this strategy.

National Collaboration

TIR participates in a federal/provincial/territorial Sustainable Transportation Task Force, struck in late 2006. The Task Force is aimed at advancing understanding about sustainable transportation and developing a common definition for future FPT application; identifying sustainable transportation issues that should be addressed in a national context; inventorying transportation policy, planning and financial instruments and strategies to achieve environmentally sustainable transport; and differentiating applications of sustainable transportation for the urban/rural and freight/passenger contexts.

The Task Force will prepare a discussion paper on sustainable transportation, including background, policy levers, key challenges, principles, best practices, financial instruments and indicators. It will also develop a consensus on the operational definition of sustainable transportation.

Future collaborative efforts on sustainable transportation will provide valuable insight and opportunities for Nova Scotia and the Province should be represented accordingly as they occur.

International Collaboration

Nova Scotia is also a member of the Conference of New England Governors/Eastern Canadian Premiers, which in 2001 prepared and agreed to a *Climate Change Action Plan*.

One of the key action items in the plan was the reduction of GHG emissions in the transportation sector. The goal for states/provinces is to slow the growth rate of transportation emissions in the near future, to better understand the impacts of transportation programs and projects on overall emissions, and to seek ways to reduce these emissions. The plan recommended that states/provinces undertake the following actions:

- Promote the shift to higher efficiency vehicles, lower carbon fuels and advanced technologies through the use of incentives and education;
- Disclose GHG emission impacts from new publicly-funded passenger and freight transportation projects and alternatives;
- Promote compact development and transit-pedestrian development and other “smart growth” measures to encourage local communities to consider the energy impacts of development and infrastructure construction;
- Undertake programs designed to manage and reduce transportation demand in communities;
- Enhance mass transit infrastructure, intermodal connections, optimizing existing services and, where feasible, boosting ridership;
- Encourage shifts to lower-carbon fuels and advanced vehicle technologies for all transit services;
- Examine opportunities in freight transportation that would improve the energy efficiency of the movement of goods across the regions; and
- Support the development of inter-connected regional, state, provincial, and local greenway and bicycle/pedestrian pathway systems to promote non-fossil transportation alternatives.

Current and future collaboration with the NEG/ECP provides important regional opportunities for the creation of a sustainable transportation system in Nova Scotia.

MOVING FORWARD

The Role of the Department of Transportation and Infrastructure Renewal

Sustainable transportation is a complex issue and an integral part of the solution to a global environmental problem. Nation-wide and industry-wide measures are needed first and foremost to address this situation. The Province is actively participating in national efforts to meet the challenges and opportunities presented by climate change, and is developing its own Energy Strategy and Climate Change Action Plan.

The Department is moving forward on sustainable transportation. The role of Transportation and Infrastructure Renewal in promoting sustainable transportation is outlined in this strategy, demonstrating our commitment to:

- Ensuring that our activities incorporate effective sustainable transportation practices.
- Making appropriate provision within our infrastructure investments to support sustainable transportation alternatives.

The Department is also committed to continuing its work on sustainable transportation with key industry and government stakeholders.

Components of the Sustainable Transportation Strategy

The first section of the *Sustainable Transportation Strategy* outlines practices the Department has already incorporated within its own operations.

The second section covers measures that will support more sustainable transportation practices and the use of alternative transportation modes in Nova Scotia.

I. Incorporating Effective Sustainable Transportation Practices

Promoting Sustainability from Within

In late 2007, TIR created the *Sustainability Steering Committee*, or *Green Team*. The *Green Team* is responsible for:

- Identifying and providing a coordinating function and tracking the progress of present sustainability efforts in the department, or that affect the department.
- Identifying potential sustainability efforts within the department, or joint efforts with other departments, and initiating an analysis of these efforts.
- Recommending potential new initiatives for the department.
- Identifying incremental financial and/or human resource requirements associated with existing and proposed new initiatives.
- Ensuring that the department has appropriate representation on key interdepartmental and intergovernmental committees and working groups.

The *Green Team* will periodically review the status of this *Sustainable Transportation Strategy* in relation to these responsibilities.

Greening Highway Operations, Construction and Maintenance

- Salt Management Plan.
- More sustainable traffic-line painting practices. By using acrylic paints and other alternatives, the Department is reducing its use of traditional solvent traffic line paints which contain higher levels of Volatile Organic Compounds (VOCs).
- Recycled asphalt paving.
- Development of new green protocols for highway maintenance (e.g. ditching and invasive species control and eradication).
- Construct and use roundabouts and other emerging geometric treatments for intersection improvement projects.
- Conversion to LED traffic lights.
- Use of photocells to control energy use in traffic/street lighting.
- Increasing use of Intelligent Transportation System (ITS) measures
 - Weigh-In-Motion. TIR installed a high speed Weigh-In-Motion system in the Trans Canada Highway (TCH) 104 at Aulds Cove. The system allows for high speed

screening of commercial vehicles traveling eastbound on the highway, thus improving safety, saving compliant vehicles time, and eliminating possible resulting congestion.

- The Road Weather Information Systems (RWIS) in Nova Scotia enhance highway safety through more efficient salting and plowing operations and facilitates more precise forecasting of winter weather and pavement temperatures. Subject to available funding, up to 15 additional RWIS installations are planned on major routes and trunks to complete the Provincial RWIS system by 2010.
- Use of anti-idling signage at Provincial ferry terminals.
- Use of the Fleet Smart program which trains drivers in sustainable driving and maintenance practices.
- Environmental assessments and protection plans for highway projects.
- Commitment to participate in the implementation of an E-Pass program for employees to encourage employee use of public transit.
- Participation in the development and implementation of a new Provincial Green Fleet Policy to reduce GHG emissions, cut fuel costs, and educate drivers to drive more efficiently.
- Development of an anti-idling policy for Nova Scotia government fleet vehicles and employee-operated vehicles on government business

The use of alternative fuels in fleet vehicles is currently a component of many fleet greening policies in other jurisdictions. Unfortunately, these products are largely unavailable in the transportation industry in Nova Scotia at the present time, making it unfeasible to emphasize the use of alternative fuel as a primary recommendation. However, more extensive use of these products could be re-examined at some point in the future when they become more readily available.

Leading in Environmental Stewardship

TIR has implemented numerous environmental practices that, in addition to accomplishing the environmental goals of the department, contribute to sustainable transportation within the province. These include:

- Development of an Environmental Management System for the department.
- Erosion and Sediment Control Training for construction contractors and government field staff.
- Wetlands Awareness Training, habitat creation and restoration projects as mitigation and compensation for unavoidable damage to terrestrial and aquatic habitat, and habitat banks and 'Consolidated Compensation Projects' for damaged fish and wetland habitat.
- Environmental remediation of highway depot sites around the province.

Creating Partnerships for Sustainability

- TIR is a member of the TRAX Advisory Committee. TRAX is a project of the Ecology Action Centre that promotes sustainable transportation in Nova Scotia through trip reduction, public education, and outreach.
- TIR has committed to the Halifax Regional Municipality that, for all highway projects within the core of the municipality, provisions for active transportation and public transit will be incorporated into highway design and construction.
- TIR also pursues partnership opportunities related to sustainable transportation, for example the Provincial Oceans Network (PON) and the Environment Council of the Transportation Association of Canada (TAC).
- TIR is working with other provinces and territories, and the federal government on a Sustainable Transportation Task Force. The goal of this group is to identify opportunities to work collaboratively on sustainable transportation issues of national scope.
- TIR interacts with other Provincial government departments in a number of formal and informal networks to consider and address issues of sustainability in transportation.

II. Supporting Sustainable Transportation and Alternatives

The Department of Transportation and Infrastructure Renewal is currently developing new initiatives to promote sustainable transportation practices and the use of transportation alternatives by employees of the department. Such measures include:

- Development of an internal Sustainable Transportation Code of Practice for the Department of Transportation and Infrastructure Renewal, including provisions for the following:
 - Carpooling
 - Promotion and support for active and sustainable transportation alternatives (i.e. provision of indoor bicycle storage and shower facilities in department buildings)
- Design, maintenance and promotion of an intranet website designed to promote sustainable and active transportation among employees. Including:
 - Sustainable/active transportation facts
 - Links to sustainable/active transportation events, resources and organizations (i.e. Commuter Challenge, transit schedules, TRAX, etc)
 - Sustainable Transportation Code of Practice
 - Ride-share/carpool finder
 - Anti-idling policy

TIR is examining the following measures to promote and impact sustainable transportation within industry and the general population in Nova Scotia:

- Investigate additional 'green' practices for highway construction and rehabilitation (i.e. alternative paving technologies and the recycling/use of waste materials)
- Implement a five-year *Weigh-In-Motion Expansion Program* to complete five new Weigh-In-Motion projects (one per year) at existing scale house locations throughout the province
 - High-speed Weigh-In-Motion systems allow for substantial savings in idling time, and in deceleration and acceleration and thus have a positive impact on air emissions and the environment
- Implement a pilot project to construct and maintain chipped-shoulders for cycling on selected highway locations throughout the Province
- Work with the federal government and other provinces and territories to assess the desirability of implementing speed limiters on commercial trucks to limit speeds to 105 km/h
- Consider the expansion into Nova Scotia of New Brunswick's trucking pilot project with long combination vehicles (LCVs). According to Alberta Infrastructure and Transportation, bigger trucks

result in reduced collisions, reduced damages, reduced emissions (by up to 40%), reduced traffic volume, reduced costs and maximized public investment. Due consideration must be given to:

- Speed limiting (i.e. 90 km/h)
- Use of combinations restricted to certain locations within the province
- Other road safety concerns: Appropriate limitations on tractor types, cargo weights, driver qualifications and weather conditions
- Work with key partners in the development of an Atlantic Gateway Distripark⁴ (AGD) for freight in the Halifax Regional Municipality, considering that:
 - GHG emissions would be reduced by reducing truck mileage or converting such mileage to more fuel efficient rail transport
 - Truck operators would accrue economic benefits due to the reduction in mileage required to transport freight (approximately 337,000 km annually)
 - Wear and tear on streets and bridges would be reduced
 - Congestion would be decreased by 130,000 trucks in Year I of the distripark's operation
- Continue to support and participate in Transport Canada's efforts to develop and implement a national active transportation strategy

⁴ The distripark would be a combination transload service, empty yard container terminal and possibly a Long Combination Vehicle (LCV) yard at some point in the future. A daily shuttle would move trainload containers between the container terminals and the proposed facility and empties would be received, stored and delivered from the AGD. Full import containers destined to other locations would continue to be delivered by truck from the terminals as would the full export containers.

Other Opportunities to Promote Sustainable Transportation

The mandate for sustainable transportation does not rest solely with the Department of Transportation and Infrastructure Renewal; there are many partners within government and in industry that must work together to achieve sustainability in Nova Scotia's transportation system.

In 2007 the Government of Nova Scotia began an exercise to renew its 2001 *Energy Strategy* and to create a *Climate Change Action Plan*.

The *Climate Change Action Plan* will focus on reducing greenhouse gases from all sources. It will give guidelines to industries, businesses, government, and all Nova Scotians about what they must do to meet the 2020 target. The Renewed *Energy Strategy* will guide all energy-related policy, with an eye on both our environment and our economy. Consultation on both is scheduled for the fall of 2007, with release dates scheduled for the spring of 2008.

Broader policy and program considerations related to sustainable transportation will be addressed in these exercises. Certain initiatives require participation and consensus from multiple government partners, and government as a whole will decide on the way forward.

The Department of Transportation and Infrastructure Renewal has been an active participant in these exercises and will continue to be involved in broader sustainable transportation initiatives under the renewed *Energy Strategy* and the *Climate Change Action Plan*.

Appendix A: Sustainable Transportation Activities in Other Jurisdictions

Across Canada jurisdictions have been implementing new and unique initiatives to address climate change and sustainable transportation. This is by no means an exhaustive listing of sustainable transportation initiatives; it does, however, provide an overview of the activity currently ongoing across the country.

British Columbia

In February 2008, British Columbia announced its *LiveSmart BC* strategy designed to reward smart choices that will save energy, water, fuel, time and money. Sustainable transportation measures include: high density planning around transit routes, expanded Scrap-It program to get older vehicles with higher emissions off the road, new investments in plug-in hybrid electric vehicles, hydrogen-powered buses, clean retrofits of dirty diesel trucks and the electrification of truck stops, and the adoption of new California-equivalent vehicle tailpipe emission standards.

BC's 2008 budget introduces other measures such as a revenue-neutral carbon tax, a Climate Action Dividend payable to every man woman and child in the Province, PST relief for electric bicycles, scooters and electric motorcycles, and sales tax reduction for all vehicles that qualify for Transport Canada's Eco-Auto Rebate Program. The budget also provides \$30 million for BC's *Green Ports Strategy* to reduce emissions from commercial truck and ship traffic.

Through the *Pacific Gateway Strategy*, British Columbia indicates that its infrastructure will improve transportation, reduce costs and improve the environment with greater supply chain efficiencies, reduced wait times, and less fuel consumption and resultant emissions. The strategy offers not only an opportunity for BC to strengthen its economy, but also to improve the environment through: the implementation of electronic tolls, reduction commuter congestion and idling, reinstatement of transit over Port Mann Bridge, truck priority measures, and railway grade separation.

Similar opportunities to improve the transportation network may exist for Nova Scotia in the future, should the federal government commit to funding for the *Atlantic Gateway*.

The province also has an emissions testing program called *Aircare*. The program is designed to address ground-level ozone problems in the Lower Fraser Valley. The program reduces automobile-generated emissions by identifying vehicles with emissions defects and requiring that they be repaired prior to relicensing. The program applies to vehicles in the Vancouver/Lower Fraser Valley and is Canada's first vehicle emissions testing program.

BC's *Hydrogen Highway* runs from Victoria to Whistler and is a large scale, coordinated demonstration and deployment program for hydrogen and fuel cell technologies. Its goal is to establish Canada as a destination for investment, research and implementation in hydrogen fuel cell technologies. By communicating Canada's successes to industry and the public, the *Hydrogen Highway* will help to move the global hydrogen economic from a compelling idea to a commercially viable reality. Various technologies are demonstrated and deployed on the *Hydrogen Highway*, including fuelling stations to support mobile, stationary, portable, and micro fuel cell applications.

BC also has a *Teacher's Guide to Clean Air* for use with grade five students which includes teaching materials, and ideas for activities with students to raise their awareness of the importance of clean air. It also teaches students about the linkages between fossil fuel consumption, air quality and global climate change.

BC Climate Change (funded in part by the province) hosts a *Greenhouse Gas Action Guide* which provides local government users with an inventory of actions they can undertake to reduce their greenhouse gas emissions on a daily basis. There are a large number of transportation activities identified in the following subcategories: Fleet, General Transportation, Parking, Smart Transportation, Street Lighting, and Traffic Signals. Specific activities include:

- Right-sizing vehicles to departmental needs;
- Using biodiesel in corporate fleets;
- Converting fleets to run on alternative fuels;
- Developing a training program for facilities managers that concentrates on energy efficiency and energy management skills;
- Encouraging fleet smart programs for municipal and community vehicles;
- Incorporating clean technology vehicles into the corporate fleet;
- Initiating an internal anti-idling campaign;
- Use of bio-oil in power tools, two stroke engines and hydraulic systems;
- Hosting Environment Canada's annual voluntary Vehicle Emissions Testing Clinics;
- Requiring bicycle storage and shower facilities in new Provincial buildings;
- Starting an employee transit pass program;
- Development of an employer trip reduction program;
- Retrofitting of street lights with lower wattage full cut-off flat lens fixtures;
- Evaluation of lighting density/km² and adjust where appropriate;
- Retrofitting traffic lights with light-emitting diode (LED) fixtures; and
- Use of timers and photocells to control lighting.

Other sustainable initiatives the province is involved in include: traffic management and driver information; low carbon fuel and vehicle standards; plug-in hybrids; solar power traffic devices; green trucking research; and hydrogen development.

In April 2007, British Columbia announced it would join the Western Regional Climate Action Initiative (WRCAL) – an effort to reduce GHG emissions in Western Canada (including BC and Manitoba) and the Western United States (including Arizona, New Mexico, California, Oregon and Washington). The initiative will include measures related to transportation.

Alberta

In January 2008, Alberta released its new Climate Change *Strategy*, which focuses on implementing carbon capture and storage across industrial sectors, conserving and using energy efficiently, and greening

energy production. In the coming months the province will outline specific implementation plans related to the above actions outlined in the strategy.

Alberta has a number of climate change initiatives currently underway and lists the following programs and policies as its transportation successes to date:

- Offering hybrid vehicles as a lease option for its fleet;
- Working on a Memorandum of Understanding (MOU) with the Alberta Motor Transport Association to work with the association on tools for members that enhance energy efficiency, including fleet efficiency, anti-idling, use of alternative fuels and driver training.

Alberta's Ministry of Environment also offers online tips for citizens who are interested in reducing their emissions. These include measures to be taken with regards to transportation.

Saskatchewan

Saskatchewan's 2007 Energy and *Climate Change Plan* includes several actions to create a greener transportation system in the province, including:

- Working with industry to develop E-85 (fuel blend) Corridors;
- Encouraging all provinces and the federal government to work together to create an E-85 Corridor across Canada;
- Working with industry to increase the percentage of biofuels in Saskatchewan gasoline and diesel;
- Developing a 1.4 billion litre biofuels industry; and
- Implementing a Government and Crown vehicle purchase policy that requires all vehicles to be hybrid-electric, alternative, or flex fuel, or within the top 20% efficiency in their class.

Manitoba

Manitoba is working to reduce emissions in its government fleet by purchasing alternative fuel vehicles and using alternative fuels (E10). In 2003/04 the Province owned 116 alternative fuel light-duty vehicles, including: Chrysler E85 minivans, Chrysler E85 Sebrings, E85 trucks and SUVs, Toyota Prius gas/electric hybrids, Honda Civic gas/electric hybrids, and a Dodge bi-fuel (gasoline/propane) full-size van. Manitoba's total fleet contains approximately 3900 light-duty vehicles.

In addition, more than 20% (1.98 million litres) of the Province's vehicle fuel purchased in 2003/04 was E10 fuel.

In late 2006, Manitoba signed a Memorandum of Understanding with the State of California committing the two governments to further action on climate change, including sustainable transportation initiatives. The MOU commits the jurisdictions to continue their collaborative efforts to enhance business and trade relationships to advance low- and no-emissions vehicle technology, including (but not limited to): hybrid and hydrogen bus development and the plug-in hybrid vehicle. In June 2007, Manitoba joined with British Columbia and five western US states to become a member of WRCAI, with aims at addressing regional emissions and climate change issues.

Ontario

The Government of Ontario has been aggressive in addressing climate change. Transportation related initiatives include:

- A low carbon fuel standard which will require producers to reduce carbon emissions from transportation fuels by 10 % by 2020 – the equivalent of removing 700,000 cars from the road;
- Clean Car Strategy, a \$650 million fund available to companies looking to invest in the development of new clean and green technologies; and
- Long-term Transit Funding, including transferring 2 cents/litre of the existing provincial gas tax to municipalities as well as MoveOntario/FLOW. MoveOntario is a \$17.5 billion transit plan for the GTA and Hamilton and includes 52 rapid transit projects.

Further, Ontario's *Growth Plan for the Golden Horseshoe* coordinates land use, transportation and infrastructure decisions to manage growth and urban sprawl as the population in the area grows. Successful development of planned urban growth centres will increase ridership on the rapid transit network, improve transit's modal share of travel in the region and reduce congestion on the highway and arterial road network. As a result, 800 million new transit trips per year will take 300 million car trips off the roads in GTA and Hamilton and will cut smog and reduce carbon dioxide emissions by 10 megatonnes by 2020.

Ontario implements *Drive Clean*– an emissions testing program for light-duty vehicles (cars, vans, light trucks, and sport utility vehicles) aimed at reducing smog-causing pollutants from vehicles in the province's "Smog Zone" which reaches from Ottawa to Windsor.

Ontario's *Regulation 535/05* calls for an annual average of 5% ethanol in gasoline, beginning in January 2007. Ontario's 2007 target for ethanol will reduce annual GHG emissions by 800,000 tonnes, equivalent to removing 200,000 cars from the road.

Under the provincial *Fuel Tax Act* biodiesel and ethanol are exempt from the provincial portion of the excise tax on fuel. Ontario also has a *Sales Tax Rebate Program* (up to \$1000) for vehicles powered by alternative fuels.

The \$520 million *Ontario Ethanol Growth Fund* contributes to the development of an ethanol industry and encourages the development of ethanol plants in Ontario (capital grants, loan guarantees, operating grants, etc.).

The Region of Waterloo has a Grade 3 curriculum supplement called "You Can Clear the Air" that teaches students about what gets into the air and how, the range of travel options available in the region, as well as how transportation choices affect the environment. Key messages include: What is Air? What is in Air? What gets into air based on transportation choices? What are the impacts on the environment? The curriculum also offers a family travel audit tool and teaches students how they can change their transportation choices to have less impact on the environment.

The supplement includes the opportunity to have a transit bus visit the school and a Grand River Transit (GRT) facilitator educate the students about how to use the bus. Students get to take a tour of their neighbourhood and do other activities while aboard the bus. The culminating task in the curriculum is a

poster contest where the students create a message about transportation choices to share with the community. Winning posters are used on buses for promotional purposes.

Local media have been very supportive of the initiative, which has won awards from CUTA and TAC. The Region of Waterloo is willing to share this tool with interested parties and has had inquiries from across Canada.

Quebec

Quebec's *2006-2012 Climate Change Action Plan* includes a number of actions aimed at reducing GHG emissions resultant from transportation activities, including:

- Implementing California-equivalent GHG emission standards for light vehicles sold in Quebec starting in 2010;
- Encouraging the development and use of mass transit (\$7 billion f/p funding over 10 years for infrastructure development and improved service);
- Encouraging the development and use of alternate modes of transportation (i.e. electric vehicles);
- Encouraging implementation of intermodal projects for goods transportation;
- Establishing a program to support penetration by technological innovations for energy efficiency in goods transportation;
- Passing regulations making it mandatory to activate and set truck speed limiters at a maximum of 105 km/h; and
- Requiring each department to develop, by 2008, a program to reduce GHG emissions from employees commuting to work.

Quebec is also implementing a number of small tax measures to encourage sustainable transportation choices, including: partial tax exemptions on fuel-efficient hybrid-vehicles; tax exemptions on employer-provided transit passes; tax elimination on biodiesel; and a surtax of \$30 to \$150 on vehicle registration for those with engines greater than four litres (a small percentage of Quebec's fleet).

Quebec's *2006-2015 Energy Strategy* also encourages innovation in renewable fuels and the province will mandate 5% ethanol in gasoline by 2012. The strategy indicates that the Province will work to foster public transportation, improve efficiency in goods transportation, provide public sector leadership, and assess ways to encourage growth in the market for low consumption vehicles. The strategy also looks to modify government purchasing policy to systematically privilege the best energy performance equipments and facilities. The goal of the strategy is to reduce consumption for government transportation by 20% by 2010 from 2003 levels.

The province has also developed a Public Transit Policy with a target of increasing ridership by 8% by 2012. The policy has five components: public transit; rural public transit, including inter-city and inter-region transport; adaptations of inter-city taxis and buses (accessibility); walking and cycling; and energy efficiency.

New Brunswick

In June 2007, New Brunswick issued its *Climate Change Action Plan 2007-2012*, which included the following measures related to transportation:

- Developing, in partnership with communities and stakeholders, a public transportation strategy to ensure New Brunswickers have convenient alternatives to private vehicle use and that their needs for mobility are met;
- Developing a new Intelligent Transportation Strategy to position NB as a national leader in transportation technology and also to help reduce emissions from the transportation sector;
- Working with the trucking industry to examine opportunities for engine efficiency and aerodynamics technologies in order to reduce pollutants and GHGs;
- Offering incentives for New Brunswickers to switch to alternative fuel and fuel efficient vehicles;
- Requiring that older vehicles have an emissions test and establish minimum emissions standards as a requirement for vehicle registration;
- Partnering with the trucking industry and Quebec to implement a strategy of limiting truck speeds to 105 km/h
- Encouraging, through public awareness and education, the importance of anti-idling as a means of protecting public health and the environment;
- Working with municipal associations and communities to develop a model anti-idling policy for use by local jurisdictions;
- Encouraging research and development of biofuels produced from either agricultural products such as corn, barley, wheat or from wood waste, which will help establish availability for this alternate fuel in the market; and
- In cooperation with the federal government, supporting the use of biofuels with a view to requiring a minimum average of 5% ethanol in gasoline and 5% biodiesel in diesel fuel sold for vehicle or heating fuel use in New Brunswick.

In addition, in 2006 the Government of New Brunswick announced a new 'green' vehicle policy to green the Province's vehicle fleet and reduce GHG emissions. The new purchase requirements extend to all new vehicles purchased through and maintained by the Department of Transportation's Vehicle Management Agency, and includes vehicles driven by Ministers and Deputy Ministers. Full-size pickup trucks and SUVs will not be purchased under the policy, unless they are hybrids.

Prince Edward Island

In its 2000-2003 *Curbing Climate Change* business plan, the Province committed to reduce GHG emissions through: more efficient traffic-flow management; more efficient fleet management using GPS-T and ITS; and the sharing of transportation related and regional weather information data. Some projects identified in this plan include: synchronized traffic signals on perimeter highways in Charlottetown; adaptive traffic signals for Charlottetown; Advanced Traveler Information; fleet management for highway maintenance using GPS-T and ITS technologies; and Road Weather Information Systems.

The Province has provided partial funding for a new public transit system in Charlottetown and also offers a \$3000 rebate on hybrid vehicle purchases. The Province has also expressed interest in developing a 10% ethanol standard for gasoline.

Newfoundland and Labrador

Newfoundland and Labrador's 2005 *Climate Change Action Plan* made the following commitments with regards to transportation:

- Development of an information campaign aimed at motorists to make them aware of the linkages between climate change and auto usage;
- Establishment of idle-free zones around public buildings to reduce emissions of greenhouse gases and other contaminants;
- Completion of a feasibility study for the development of commuter parking at key junctions;
- Study of the energy efficiency of the provincial ferry fleet in an effort to reduce fuel consumption and GHG emissions.

The Province also offered, in 2005/06 a series of Climate Change workshops for municipalities, in an effort to inform key municipal decision-makers of the impacts of climate change and the importance of developing appropriate planning and adaptation strategies.

In its 2006 update of the *Climate Change Action Plan*, the Province identified idle-free zones around provincial buildings. Phase I involved placing idle-free signs in front of targeted government buildings. Phase 2 involved the installation of more signs around provincial buildings, a media campaign, and action toward idle-free zones around schools and hospitals.

The update also identified the opportunity to convert marine feedstock into biodiesel to be used within the province as a substitute for petroleum diesel.

Appendix B: Sustainable Transportation Resources and Weblinks

Nova Scotia

- Ecology Action Centre
<http://www.ecologyaction.ca/index.shtm>
- GPI Atlantic
The GPI Transportation Accounts: Sustainable Transportation in Nova Scotia (2006). Online.
<http://www.gpiatlantic.org/pdf/transportation/transportation.pdf>
- *Environmental Goals and Sustainable Prosperity Act (2007)*
http://www.gov.ns.ca/legislature/legc/bills/60th_1st/3rd_read/b146.htm
- *Nova Scotia's Ecotrust for Clean Air and Climate Change*
<http://www.gov.ns.ca/ecotrust/>

Federal

- ecoFreight Program
<http://www.tc.gc.ca/programs/environment/ecofreight/menu-eng.htm>
- ecoMobility Program
<http://www.ecoaction.gc.ca/ecotransport/ecomobility-ecomobilite-eng.cfm>
- Federal Budget 2007
<http://www.budget.gc.ca/2007/pdf/papemhe.pdf>

Provincial

- British Columbia's *Aircare* program
<http://www.aircare.ca>
- British Columbia's Hydrogen Highway
<http://www.hydrogenhighway.ca/code/navigate.asp?ld=265>
- A Teacher's Guide to Clean Air (British Columbia)
http://www.env.gov.bc.ca/air/cad/pdfs/Clean%20Air_Guide_final.pdf
- Greenhouse Gas Action Guide (British Columbia)
<http://www.ghgactionguide.ca/about/>

- Alberta's 2008 Climate Change Action Plan
<http://environment.alberta.ca/1319.html>
- Albertans and Climate Change: Taking Action (2002)
<http://environment.gov.ab.ca/info/library/6123.pdf>
- Saskatchewan Climate Change Initiatives – Online Inventory
http://www.se.gov.sk.ca/environment/climatechange/Full_Inventory_Chart.pdf
- Ontario's *Drive Clean* program
<http://www.driveclean.com/>
- New Brunswick Climate Change Action Plan, 2007-2012
<http://www.gnb.ca/0009/0369/0015/0001-e.pdf>
- Newfoundland and Labrador Climate Change Action Plan, 2005
<http://www.env.gov.nl.ca/env/Env/policy%20and%20planning/climatechangereport/climatechangeplanfinal.pdf>
- Prince Edward Island *Curbing Climate Change* (2000-03)
http://www.gov.pe.ca/photos/original/fae_climatepei.pdf

Other

- The NEG/ECP Climate Change Action Plan (2001)
<http://www.neg-ecp-environment.org/page.asp?pg=53>
- Region of Waterloo: You Can Clear the Air Curriculum Supplement
<http://www.grt.ca/web/transit.nsf/DocID/729BA5B3EEE55C8185256AE800716CD1?Opendocument>
- Centre for Sustainable Transportation (University of Winnipeg). <http://cst.uwinnipeg.ca/>