

SUSTAINABLE URBAN TRANSPORTATION INITIATIVES IN CANADA

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ABSTRACT

As Canadians work toward a sustainable future, attention is being focused on urban transportation. This paper presents a sample of the many initiatives now underway.

The Urban Transportation Council, sponsored by the Transportation Association of Canada (TAC) has published "*A NEW VISION FOR URBAN TRANSPORTATION*". It proposes a 30 year future for urban areas, and can be tailor fit to local conditions. The vision is supported by 13 decision making principles which point the way to more sustainable urban transportation systems. It calls for significant change from past practices in terms of land use and urban structure, the role of private autos relative to other modes, and transportation funding. The TAC vision has been widely endorsed and is beginning to have an impact on policies and decision making. Reasons for success with the TAC approach are offered as a guide to others.

The National Round Table on the Environment and the Economy has prepared *Principles for Sustainable Transportation* and is now sponsoring a multi-stakeholder forum to raise Canadian awareness of related issues. The Ontario Round Table on the Environment and the Economy has released a comprehensive *Sustainable Transportation Strategy for Ontario*, which has a strong urban focus. Canada's new Centre for Sustainable Transportation is described. Activities of federal, provincial, regional and city governments are briefly reviewed.

The paper closes with some thoughts on the long term future, beyond the current transition stage, when cities and their transportation systems may achieve true and lasting sustainability.

INTRODUCTION

For more than a decade, Canada has taken a lead role in the sustainable development movement, through the Brundtland Commission, the Rio Earth Summit, the Agenda 21 Program and other activities. At home, Canadians have pioneered the development of multi-stakeholders "roundtables on the environment and the economy" at national, provincial and local levels.

Although the idea of sustainable development has been around for over 20 years, it is only in the past few years that people have moved beyond the conceptual stage and started to create practical strategies in specific sectors and local regions. Since transportation is critically important to the environment, to society and to the economy, it was only a matter of time until it started to move up on everyone's agenda.

When people think about sustainable transportation, they often think of urban transportation first. Urban areas are where most people live, where most resources are consumed, and where most pollution is generated. This emphasis is correct because, in our view, the battle for sustainable transportation will be won or lost in the trenches of the cities.

In this paper we will highlight recent work of TAC (Transportation Association of Canada) and its Urban Transportation Council in helping Canadians move toward sustainable urban transportation systems. We will describe what has worked and why, because there are lessons here for ourselves and for others. We will also review some of the many other initiatives underway at the national, regional and local levels in Canada and will conclude with some thoughts on the future.

THE CANADIAN CONTEXT

For a country with only 27 million people, Canada is a very big place. This gives the impression of wide open spaces - of which we have many - but Canada is in fact a very urbanized nation. Some 80% of all Canadians live in urban areas. Almost one third of us, or about 9 million, live in three urban areas centered on Toronto, Montreal and Vancouver. This is part of a global trend which will see one half of the world's population living in cities by the year 2000.

Canada's shift from the countryside to the cities began in the 1950s and 1960s. A strong economy, cheap land on the urban fringe, the desire for single family homes on large lots, increased automobile ownership, the second cheapest gasoline in the world, good roads provided from the public purse, and urban planning that forced work places to be geographically separated from living places, all combined to create the now famous "urban sprawl" and "commuter rush hour" which are characteristic of North American cities.

The result has been: low density urban developments (2,470 people/km² in Greater Toronto, 2520 in the Montréal Region and 620 in Greater Vancouver) which are difficult to serve with public transit; ever increasing dependence on the private automobile (often single occupant); and growing pollution, frustration and waste.

In the long run these practices are neither environmentally nor socially nor economically sustainable.

- ***In the environment*** we see: increased consumption of fossil fuels and other non-renewable resources; air pollution leading to respiratory and other health problems; greenhouse gas emissions (notably carbon dioxide) contributing to global warming and climate change with potentially disastrous results; and consumption of valuable land.
- ***In society*** we have: communities in which auto use is more a necessity than a luxury; a lack of "sense of place" in neighborhoods without lively and pedestrian friendly streetscapes; unsafe areas for women, children and the elderly especially at night; and family disruptions when one or both parents must spend long times in stressful commutes.
- ***In the economy*** there are: inefficient uses of aging infrastructure; hidden subsidies and accounting systems that ignore external (environmental, social) costs, thus sending the wrong market signals to public decision makers and travelers; and deficit fighting government budget cuts, which mean the old ways of doing things are no longer affordable.

It is in this context that the TAC Urban Transportation Council began working toward solutions to sustainable urban transportation challenges in 1991.

TAC AND THE URBAN TRANSPORTATION COUNCIL

TAC is a nationally chartered, non-profit corporation that has been in continuous operation since 1914. It is Canada's foremost, broad-based assembly of transportation stakeholders with some 450 members from the private and public (federal provincial, municipal) sectors. Its current mission is *"to promote the provision of safe, efficient, effective and environmentally sustainable transportation services in support of Canada's social and economic goals."*

In 1991 TAC created the Urban Transportation Council with a mandate *"to provide a focus for urban transportation issues within the Canadian transportation community"*. It is one of five permanent Councils reporting to the TAC Board of Directors.

Its 23 members cover the range of active players in the urban transportation scene including: municipal politicians, transportation engineers, and urban planners; provincial representatives; real estate developers; transit operators; motorists; parking operators; truckers; and researchers/academics.

The largest four of Canada's 10 provinces are represented on the Council, as are 11 of its top 25 metropolitan areas. Representation is at a very senior level including mayors, commissioners of transportation, commissioners of planning, and transit system general managers. This widespread and senior level representation is important, as will be seen later.

A NEW VISION FOR URBAN TRANSPORTATION

In the beginning, the Council reviewed various technical options which were being proposed to deal with urban transportation problems. We concluded that the fundamental problem is not technical but institutional in nature. The many players in each urban area need to create and agree upon one common vision of what their urban area will look like in the future and how it will function. Only then can decision makers plan, fund and deliver the necessary transportation systems. That conclusion was published in 1992, in our first briefing titled *"CREATING A COMMON VISION - THE URBAN MOBILITY CHALLENGE"*.

Having called for a new vision, the onus was then on the Council to suggest one. We did that in 1993 with the publication of our second briefing titled *"A NEW VISION FOR URBAN TRANSPORTATION"*. This is an important document, and we urge you to study it carefully. Copies are available to delegates at this APEC Forum.

The briefing proposes a 30 year generic vision for Canadian urban areas, and can be tailor fit to local conditions. The vision calls for major change from past practice in terms of land use and urban structure, the role of private autos relative to other modes, and transportation funding. Emphasis is placed on reducing the need for travel through land use change, designing for the movement of people and goods rather than vehicles, offering real alternatives to single occupant auto use, and sending the right market signals through charges based on consumption of road space.

A GENERIC VISION FOR URBAN TRANSPORTATION IN 2023

A long term urban development plan has been approved. It emphasizes multi-use town centres and high density, mixed use along connecting corridors. Transit has funding and operating priority in those corridors.

Short-medium term community/ neighborhood plans have been approved.

They emphasize compact, mixed use communities based on pedestrian, cycling and transit friendly design.

Transit, highways, arterioles, parking and truck routes are planned and coordinated across the urban area.

The percentages of trips made by walking, cycling, transit and high occupancy automobiles are all increasing; the percentage of trips made by single occupant automobiles is decreasing.

The average distance and time for peak hour commuter travel is decreasing.

An area wide parking strategy is in place and enforced.

There are very few places which still require on-street goods transfer.

The physically challenged enjoy universal access to public transport facilities and services.

Roads and bridges are in a good state of repair.

Air pollution from motor vehicle sources is declining.

Urban transportation infrastructure and services are adequately funded from stable and sustainable revenue sources.

Political leaders have the support of a well informed public when making decisions on urban development and transportation systems to serve the area.

The vision is supported by 13 decision making principles which point the way to more sustainable urban transportation systems in the future.

1. Plan for increased densities and more mixed land use. This principle is fundamental to achieving the whole vision. It calls for new developments within existing urban boundaries, especially at town centres and along transit corridors. If successful this will reduce dependence on the private auto, shorten many trips and encourage walking, cycling and transit use.

2. Promote walking as the preferred mode for person trips. Notice that walking is listed first of all the modes. Here we seek a return to pedestrian friendly streetscapes in lively neighborhoods.

3. Increase opportunities for cycling as an optional mode of travel. "Opportunity" is the key word here. Many cycling options exist, even in Canada's cold climate, but better infrastructure is required.

4. Provide higher quality transit service to increase its attractiveness relative to the private auto.

The Canadian Urban Transit Association and its members are doing a lot of good work in this area. Current transit performance is higher than in the U.S. but lower than in Western Europe. Area wide harmonization of schedules, fares and information will be important for success.

5. Create an environment in which automobiles can play a more balanced role. The idea is to use a carrot rather than a stick, to reduce single occupant auto trips. We need to provide travelers with real choices (through land use change) with walking, cycling, transit and high occupant vehicle options. We need to design and operate roads as multi-modal, multi-use public facilities and not as places to process cars.

6. Plan parking supply and price to be in balance with walking, cycling and transit priorities.

Coordinated area wide parking strategies and control are required. On-street/off-street, short term/long term, public/private and park-and-ride strategies must all be considered.

7. Improve the efficiency of the urban goods distribution systems. This will be difficult because even basic data are lacking, and because of the fragmented and highly competitive nature of the trucking industry. More off street loading zones are a first step.

8. Promote inter-modal and inter-line connections. For example, the Province of Ontario is working to improve connections between 14 transit systems in the Greater Toronto Area.

9. Promote new technologies which improve urban mobility and help protect the environment.

Alternative fuels, telecommuting and Intelligent Transportation Systems come in here.

10. Optimize the use of existing transportation systems to move people and goods. This means we should make the most of what we have.

11. Design and operate transportation systems which can be used by the physically challenged.

An aging population makes this more important than ever.

12. Ensure that urban transportation decisions protect and enhance the environment. This also supports TAC's *ENVIRONMENTAL POLICY AND CODE OF ETHICS*, published in 1992.

13. Create better ways to pay for future urban transportation systems. New methods are needed. This along with the first principle on land use are the two bookends that hold the vision together. The Council is developing a new model which calls for funding which is stable and predictable, dedicated, transparent, increasingly derived from users in proportion to benefits received, and justified by measurable performance indicators.

The Council believes that the vision will result in cleaner, more socially desirable and economically competitive cities in the future. Many others agree.

ACCEPTANCE OF THE VISION

Over the past three years, some 24,000 copies of the vision have been distributed to targeted audiences in Canada and abroad. This is a very large production run by Canadian standards.

The vision has received widespread acceptance and support. In early 1996 it was cited by the Organization for Economic Cooperation and Development (OECD) as an example of "*best thinking on environmentally sustainable transportation*" in a review of transport activities in 13 of the OECD's member states.

In Canada the vision has been formally endorsed at national, provincial and local levels.

National Endorsements

- Transportation Association of Canada
- Federation of Canadian Municipalities
- Canadian Institute of Transportation Engineers
- Canadian Urban Transit Association.

Provincial Endorsements

- Association of Municipalities of Ontario
- Saskatchewan Urban Municipalities Association
- Ontario Transportation and Climate Change Collaborative.

Local Endorsements

- Municipality of Metropolitan Toronto
- Greater Vancouver Regional District
- Regional Municipality of Ottawa-Carleton
(where it has been formally adopted as the basis of all future planning)
- Regional Municipality of Hamilton-Wentworth
(Canada's Local Agenda 21 Model Community)
- Regional Municipality of York
- City of Regina
- District of Saanich.

The vision is also being referred to in many other Canadian municipalities where compatible policies are under development, notably in the Greater Montréal Region.

In February of this year the Council published its third briefing titled "*URBAN VISION SAMPLER*" This compendium of selected examples describes over 100 provincial, regional and city initiatives which support one or more of the vision's 13 decision making principles. Copies are available to delegates at this APEC Forum.

A CONTINUING PROGRAM TO ACHIEVE THE VISION

The Council has always been determined to see meaningful change emerge from its activities. Therefore, having produced the vision, we did not let it sit on the shelf. We have a continuing program to achieve it, based on six major elements.

1. Future Endorsements. We continually seek additional formal endorsements. Current efforts are focused on provincial associations and individual municipalities. In most cases we depend on our friends to achieve this.

2. Speakers Bureau. Council members accept invitations to speak before international and national conferences, annual meetings, municipal councils, local transportation and service clubs, and other events.

3. Networking. We cooperate with others, to place the vision on their agendas and to help them with their own sustainable transportation activities. Past groups have included: Canada's National Transportation Week, the Federation of Canadian Municipalities, the Canadian Institute of Planners, the

Canadian Urban Transit Association, Environment Canada, the National Round Table on the Environment and the Economy, and others.

4. Briefings. Our first three were mentioned above. Future briefings will focus on strategies and actions to achieve individual decision making principles in the vision. The next one, titled "*FINANCING URBAN TRANSPORTATION*" will be published next spring.

5. National Symposia. In 1994 we joined forces with the Federation of Canadian Municipalities and the Canadian Institute of Planners to co-sponsor a three day symposium with some 200 delegates from across Canada. The vision was the starting point. The result, produced on site, was a consensus based "*Agenda for Action*" - a set of public and private sector cooperative strategies to help create and achieve new visions at the local level.

In April, 1997 we will again join with the Federation in a symposium to create consensus "*Guidelines for User Pay in Roadway Transportation*". This will supplement the financing briefing, and is intended to help achieve vision principle #13.

6. Urban Transportation Indicators. Canada has never has a consistent and reliable national data base on urban development and urban transportation. But such time series data are essential if we are to measure progress in achieving the vision. Therefore, the Council has started to create such a data base. Results of our pilot project, using 24 key indicators, was published by TAC in June 1996 and titled "*Urban Transportation Indicators in Eight Canadian Urban Areas*". Our next survey, scheduled for 1998, will be expanded to 25 urban areas.

LESSONS FROM SUCCESS

Today the Council can look across the Canadian urban transportation landscape and see reflections of the vision and its 13 principles. Although there is still a long way to go, we are beginning to see real world change in policies and decision making. Canada has started down the road toward sustainable urban transportation systems, and the vision has been a significant factor.

Why did we have this success? What did we do right? What lessons are there for us and for others in the future? We believe that six factors were important, and that they can be transferred to other locations. This is not a priority list. All factors are critical, and all must be present.

1. The timing was right. All the active players, especially municipal councils, were ready for change. The new reality of tighter budgets in Canada means that the old ways won't work in the future. The vision is in fact less expensive than past practices. We are at a unique point in history where financial and environmental sustainability goals begin to coincide.

2. TAC provided a focus. Nothing in our vision is rocket science. In fact, most of it is not even new. What was needed was for one agency to pull it all together in a digestible format, then distribute and promote it. The TAC Urban Transportation Council was in a position to do that.

3. The authors were also the workers. The people on the Urban Transportation Council who prepared the vision are the same people (and representing the same kind of people) who will have to live with it. This is what we meant earlier when we said that the senior level, broad base of the Council membership is so important.

4. The vision is practical, realistic and achievable. With sustainability issues, many ideas promise spectacular results, but turn out to be politically impractical. Our vision is doable. It is evolutionary, not

revolutionary. We are proposing actions which people can take today. Those changes will create a new enabling environment so that more aggressive actions can be taken in the future.

5. We had champions. Members of the Urban Transportation Council believe in the vision. They "sold" it at home. They persuaded their friends to do the same. They continue to champion the vision and all the elements in our ongoing program.

6. We have a continuing program. All too often good ideas get brief exposure and then fade away. We avoided that problem. With the right idea at the right time, with champions, and with TAC as a permanent resource base, we promoted the vision heavily, and we continue to do so, with the six point program described above.

OTHER CANADIAN INITIATIVES

There is a wide variety of sustainable transportation initiative underway in Canada today. Some have a national or provincial focus but all have urban implications. Here is a sample.

National Round Table on the Environment and the Economy. Canada pioneered the concept of multi-stakeholder round tables in the late 1980s. The National Round Table, composed of 24 distinguished Canadians appointed by the federal government, was created in 1989. Its mandate is *"to identify, explain and promote, in all sectors of Canadian society and in all regions of Canada, principles and practices of sustainable development"*.

In April, 1996 the National Round Table released eight *"principles for sustainable transportation"* following an OECD conference in Vancouver:

- People are entitled to reasonable **access** to other people, places, goods and services.
- Nation states and the transportation community must strive to ensure social, inter-regional and inter-generational **equity**, meeting the basic transportation related needs of all people including women, the poor, the rural, and the disabled.
- Transportation systems should be designed and operated in a way that protects the **health** (physical, mental and social well-being) **and safety** of all people, and enhances the quality of life in communities.
- All individuals have a **responsibility** to act as stewards of the natural environment, undertaking to make sustainable choices with regard to personal movement and consumption.
- Transportation decision makers have responsibility to pursue more **integrated** approaches to **planning**.
- Transportation needs must be met without generating **emissions** that threaten public health, global climate, biological diversity or the integrity of essential ecological processes.
- Transportation systems must make efficient **use of land and other natural resources** while ensuring the preservation of vital habitats and other requirements for maintaining biodiversity.
- Transportation decision makers must move as expeditiously as possible toward **fuller cost accounting**, reflecting the true social, economic and environmental costs, in order to ensure users pay an equitable share of costs

The National Round Table is now sponsoring a "*Sustainable Transportation Forum*". Sixty stakeholders will meet in four one-day workshops in January and February, 1997. They will seek consensus on what sustainable transportation is, how it can be achieved, what governments should do and what others should do. Results will be published to stimulate national awareness and debate. The forum will have a strong urban focus.

Ontario Round Table on the Environment and the Economy.

In November, 1995 the Ontario Round Table in co-sponsorship with the National Round Table published "*A Strategy for Sustainable Transportation in Ontario-Report of the Transportation and Climate Change Collaborative.*" This landmark study presents a 12 point strategy under five major themes. Again, there is a strong urban focus.

Education and Awareness

- Design and implement a broad range of programs to ensure that the public understands the risks of climate change and the need to economize on the use of fossil fuels.

Compact, mixed use communities.

- Implement policies that will bring about more compact, mixed-use development in urban areas to shorten travel distances and reduce vehicular travel demand.

Shift from automobiles to transit.

- Establish decision-making bodies in large urban areas to evaluate, plan and deliver integrated transportation and urban development, as well as integration of transit systems and services.
- Implement transit priority measures to make transit time-competitive with automobile travel.
- Maintain sufficient funding to ensure adequate transit capacity; increase the acceptability of using funds from user pay sources to improve public transit and enhance user pay sources to improve public transit and enhance transit service in areas with sufficient population densities.
- Implement pricing and supply policies to control parking and encourage transfer to transit.

Cleaner, more fuel efficient automobiles.

- Implement fuller cost pricing for transportation modes to discourage the overuse of single occupant vehicles and encourage the use of more fuel-efficient technologies and transportation modes.
- Develop a Memorandum of Understanding with automotive manufacturers to increase the availability of fuel-efficient models, recognizing the linkage between gasoline prices and consumer demand for more fuel-efficient vehicles.
- Implement mandatory vehicle inspection and maintenance programs in large urban areas to ensure the proper operation of emission control equipment.
- Maintain incentives for the use of cleaner alternative fuels and explore ways to promote further the development and use of alternative fueled vehicles.
- Develop an Ontario capability to participate in the U.S. government's and the Big Three auto manufacturers' Partnership for a New Generation of Vehicles (PNGV). The PNGV is working to

develop vehicles that will achieve a threefold increase in fuel efficiency over today's vehicles, while maintaining size, performance, utility and safety.

Reduced emissions from freight transport.

- Enhance intermodal freight transfer facilities and services and encourage the development of new intermodal technologies and service levels.

The Centre for Sustainable Transportation was launched in July, 1996 as a nationally chartered, non-profit corporation based in Toronto. It is believed to be the first organization in the world dedicated exclusively to sustainable transportation. Its mission is *"to provide leadership in achieving sustainable transportation in Canada by facilitating cooperative actions, and thus contributing to Canadian and global sustainability."* It published action agenda calls for the deliver of:

- a vision for sustainable transportation.
- a working definition.
- quantifiable performance measurements.
- an annual *"Sustainable Transportation Monitor"*.
- decision making principles and strategies.
- research into policies, regulations, economic instruments and technologies.
- research into urban transportation systems.
- educational programs.

Environment Canada took a lead role in delivering the March, 1996 OECD Conference *"Toward Sustainable Transportation"* in Vancouver. Since 1986, the Ministry has published national *"State of the Environment"* reports on a five year cycle; the 1996 edition contains a chapter on transportation. Media campaigns are currently underway to educate the public on air quality and urban transportation issues, and to modify behaviour of private auto use.

Natural Resources Canada has an ongoing program of research aimed at quantifying and understanding energy consumption and vehicle emissions particularly in urban areas.

Transport Canada is preparing a *"National Framework for Sustainable Transportation"* to be released next year.

The Federation of Canadian Municipalities has organized a *"20% Club"* of cities whose goal is to reduce greenhouse gas emissions (notably from carbon dioxide) from transportation and other sources by 20% by the year 2000. Thirteen municipalities have joined, with another 50 expected before September 1997.

Pollution Probe, an environmental non-government organization, has a major *"Air Quality Program"* underway. Through conferences and media campaigns they seek to generate information and educate the public on the relationships between urban transportation, air pollution, human health and climate change.

As noted above, TAC's ***Urban Vision Sampler*** lists over 100 provincial, regional and city initiatives that are moving toward urban transportation sustainability, especially by combining land use and transportation planning. These include:

- Greater Vancouver's *"Livable Region Strategic Plan"* and *"Transport 2021"*.
- Hamilton-Wentworth's *"Vision 2020"* and *"Regional Transportation Review"*.

- Metropolitan Toronto's "*Livable Metropolis Official Plan*".
- Ottawa-Carleton's "*Transportation Master Plan*" (based on the TAC vision).

SUSTAINABLE...SOME DAY

We are at the beginning of a transition phase toward a new way of doing things. All the initiatives reported in this paper will move us in the direction of sustainability. This is the only logical and reasonable step we can take today. But these initiatives (and those in other countries) are still based on a future with internal combustion engines powered by fossil fuels. To achieve true and lasting sustainability we will eventually have to move beyond that with a new vision.

That will not be easy. The top three contributors to Canada's gross national product in order of magnitude are: auto manufacturing, auto parts manufacturing, and tourism (which is auto dependent). The auto as we know it is deeply ingrained in our lifestyle and social fabric; no other artifact of modern civilization can match it. A recent survey in the U.S. revealed that drivers would rather disconnect their telephones, skip their morning coffee, turn off their televisions or forgo romance than be without their cars for a single day.

This is not to say that we will not have personal use vehicles in the future, because we almost certainly will. They may not look like today's automobiles, and they may not have the same horsepower and acceleration. But if we design our communities properly, they may not need to.

The TAC Urban Transportation Council has begun to consider the long term future beyond the present transitional phase. Our thoughts are still quite preliminary, but we would like to share them with you now. In our view, any sustainable system must be based on a balanced blend of **environmental**, **social** and **economic** factors. Emphasis on any one at the expense of the others will not work.

We suggest that truly sustainable urban transportation systems should have the following characteristics.

1. In the natural environment:

- limit emissions and waste (that pollute air, soil and water) within the urban area's ability to absorb/recycle/cleanse. Carbon dioxide from fossil fuels is a prime example.
- provide power to vehicles from renewable or inexhaustible energy sources. This implies solar power in the long run.
- recycle natural resources used in vehicles and infrastructure (such as steel, plastic, etc.)
- be designed to minimize consumption of valuable land (that could be used for agriculture, habitation, etc.)

2) In society:

- provide equity of access for people and their goods, in this generation and in all future generations.
- enhance human health.
- help support the highest quality of life compatible with available wealth.

- facilitate urban development at the human scale.
- limit noise intrusion below levels accepted by communities.
- be safe for people and their property.

3) In the economy:

- be financially affordable in each generation.
- be designed and operated to maximize economic efficiency and minimize economic costs.
- help support a strong, vibrant and diverse economy.
- This thinking leads us to suggest the following draft definition.

DRAFT #1 DEFINITION

A sustainable urban transportation system:

- ***limits emissions and waste within the area's ability to absorb, is powered by renewable energy sources, recycles its components, and minimized the use of land.***
- ***provides equitable access for people and their goods and helps achieve a healthy and desirable quality of life, in each generation.***
- ***is financially affordable, operates at maximum efficiency, and supports a vibrant economy.***

Even from this early vantage point we can see two great barriers to achieving such a future.

- ***Energy.*** We will need to develop and deliver clean and renewable energy sources to power a new breed of vehicles. This is largely a technological problem.
- ***Decision Making.*** We must invent new decision making processes for governments, corporations and individuals. This is an institutional problem which permeates all aspects of the issue from lack of harmonized government policies - to resistance by industry - to individual choices about how and where people live, work and travel. This will be the most difficult barrier to overcome.

CONCLUSION

Achieving sustainability is the greatest challenge facing the urban transportation community today. It will not be easy, and it will not be done overnight.

To those of us who devote a good part of our lives to the task, there will be times of discouragement. It will not always be easy to keep the faith. But ensuring the well being of those who follow us is a noble goal, worthy of our best efforts as intelligent, compassionate human beings.