Transportation in Canada; Solutions to the Gridlock

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"Like all public monopolies, highways give you the impression of a free good. They are not. I ask that we bear in mind one simple adage: just as there is no such thing as a free lunch, there is no such thing as a 'free way.' The only real questions are: who pays, who benefits and how much."

-- Former U.S. Senator Daniel P. Moynihan

My objective in this paper is to shed some light on the root causes of the problem in the surface transportation sector in Canada and to propose some solutions that policy makers may wish to consider to address these underlying causes. In the first part of the paper, though, I situate my argument for a different kind of transportation policy in the context of a longstanding theoretical debate about liberalism.

This conference takes as its theme the search for a new liberalism. The implicit assumption of such a title is that the old liberalism has somehow been found to be wanting. In the area of transportation, the subject of my paper, I would suggest that the recent historical evidence of outcomes in this sector lends support to this view. Canadian liberalism, understood as a prescriptive philosophy of government designed to improve the general welfare, has been applied in too restrictive and narrow a manner in the transportation field. In the surface transportation sector, the core belief of the past fifty years, one clearly reflected in policy, has been that freedom of individual choice trumps concerns about societal good.

Negative Liberty and Transportation

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To substantiate this assertion, I propose to examine the empirical evidence in the sector using the theoretical constructs of "negative" and "positive" liberty made famous in Isaiah Berlin's inaugural lecture as the Chichele Professor of Social and Political Theory in the University of Oxford. Applying Berlin's insights from the 1950s to practical policy problems of today holds, as David Greenberg argues, "untapped promise for reconceiving the premises of our most basic political debates."[1] In the lecture, entitled "Two Concepts of Liberty" Berlin makes a distinction between negative liberty, which he understands to mean the casting off of chains or the freedom from restriction, and positive liberty which he suggests is consistent with limiting some freedoms to achieve a higher good. Negative liberty essentially meant leaving individuals alone to pursue their own ends, a condition which Berlin ultimately endorses given his stated concerns about the risks of misguided paternalism.

It is my contention that negative liberty has been enshrined as the guiding principle in the policy arrangements that underpin transportation. The mix of incentives that exist in this sector are heavily skewed towards enhancing a private conception of individual mobility (automobile use) irrespective of the costs that this imposes on society or the environment. Individual choice is the pre-eminent value while very little is done by governments to make transparent the consequences for society of our transportation decisions. In urban areas particularly, the emphasis on negative liberty or permitting individuals to exercise their transport choices unencumbered by concerns for society's overall well-being, is becoming problematic.

Below I discuss how Berlin's concept of negative liberty may be seen as informing the guiding principles and practices of surface transportation policy.

There is no dedicated charge for road use in Canada; we do not have a system of user pay. Roads are paid for out of consolidated revenue funds or general tax revenues. Those of us who drive pay, to different levels of government, a combination of provincial special motor fuel taxes, federal excise taxes on road fuels, vehicle registration and driver licence fees. Tolls account for only a small portion of total government revenue. The fact is that governments tend to adopt a very narrow definition of the costs associated with road-building and maintenance. At present they include the costs of construction, maintenance and a part of the expenditure on enforcement,

[1] David Greenberg review of Michael Ignatieff's Isaiah Berlin: A Life in Journal Civnet's Journal for Civil Society, January-February 1999, Vol 3., No.1.

safety and policy activity. They adopt a straight cash flow accounting model, lumping capital spending in with operational spending.

Governments don't factor in the total economic costs of road spending; they neglect to include the opportunity costs of the capital invested in the highway network. For example, paying an amount equivalent to the cost of constructing a new road to pay down the national debt may have generated a significant saving in debt-servicing costs. Capital deployed elsewhere may contribute more to the maximization of overall public welfare. Nor do they account for the depreciation costs of the road network that affects the useful life of the asset in question. It was estimated by Transport Canada in 1993 that the failure to include economic costs of roads meant that, in reality, there was annual shortfall of $5.5 billion in road revenues compared to road costs.[2] There are also questions about how much of the fuel tax collected should be considered road revenues. Railways after all, do not use the roads, but they still pay fuel taxes.

Other factors such as social costs and externalities, are also left out of the economic calculation of the cost of roads. The costs of congestion such as the extra fuel consumption of idling engines or delays in deliveries due to stalled traffic have been estimated to be around $2 billion annually in Toronto and $1.5 billion in Vancouver. Environmental costs which include such items as the costs of toxic pollutants, greenhouse gases, noise, damage to adjacent farmland or greenspace etc. are substantial. The Organization for Economic Cooperation and Development has noted:

> Transport's environmental impacts occur mainly during the operation of motorized transport, but are also caused during the production and maintenance of vehicles, the construction of infrastructure, the provision of energy and fuels, and the disposal and decommissioning of vehicles and infrastructure. All impacts during the entire life cycle have to be taken into account.[3]

Social costs may include the costs of treating asthmatics whose admissions to hospital increase during smog alerts or the costs of rehabilitating road accident victims. This year Ontario has recorded the most number of smog alerts in its history (27) in comparison to the previous record of 23, set last year (2001). Both of these numbers represent significant increases over the 14

[2] Transport Canada, Road Infrastructure Expenditures, Fuel Taxes and Road Related Revenues in Canada, TP 12795E, June 1996, p.11.
[3] OECD, Environmentally Sustainable Transport; Futures, Strategies and Best Practices, (Paris: OECD, October 2000), p.28.

smog days registered in Ontario in 1995, the previous highwater mark. Ground-level ozone, the main consituent of photo-chemical (summer smog), formed from the from the action of sunlight on NOx (nitrogen oxide) and VOCs (volatile organic compounds), is believed to be responsible for between 10 and 20 percent of hospital admissions for respiratory ailments during the summer months in North American.[4] According to the Ontario Medical Association, 1,900 people died prematurely in the province in the year 2000 from the effects of air pollution. In respect of accidents, Transport Canada estimated the annual cost of traffic crashes to be $25 billion in 1999. As recently as 1998, the Ontario Association of Chiefs of Police (OACP) was lamenting the huge allocation of police resources to dealing with motor vehicle accidents. In 1998, the police devoted 800,000 hours of time to dealing with 215,000 traffic accidents in which 1,000 people lost their lives and 90,000 were injured. As the Chief of the OACP remarked at the time:

> …if we had a similar number of murders there would be an extraordinary outcry. Traffic collisions deserve the same kind of outrage when you look at both the cost in human life and the social costs.[5]

Using conservative assumptions, the costs of environmental remediation, health care costs, emergency scene attendance, lost productivity to the economy, and other factors amount to billions of dollars which the Canadian taxpayer must absorb. In Europe, the OECD estimates that transport's unaccounted costs amount to some eight percent of the GDP of OECD European countries.[6]

The point of furnishing the preceding welter of statistics is to illustrate how much of the actual cost of roads remain unaccounted for. Given the significant tacit subsidy to road use, it is hardly surprising that Canadians drive a great deal. In fact, the recent report of the Canada Transportation Act Review (CTAR) Panel has predicted that on the basis of past patterns, total car use will be 50 to 60% higher in 2015 than in 2000.[7] That a significant monetary subsidy operates to the benefit of private vehicle users is not in doubt. The CTAR Panel is worth quoting at length on this point:

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[4] Ibid., p.21.
[5] Ontario Association of Chiefs of Police, Media Communique, 2nd December 1998, p.2.
[6] OECD, Environmentally Sustainable Transport, p.28.
[7] Canada Transportation Act Review Panel, Vision and Balance, (Ottawa: Public Works and Government Services Canada, 2001), p.177.

> …road users do not have to cover the whole cost of road use, because of the way governments fund road infrastructure, and because most users do not have to deal personally with some of the unwelcome social effects. If they had to do so – if road users were charged directly on each trip for the cost of maintaining the road network, as well as for the costs of congestion, environmental damage and accident risks that their road use imposes on others – it seems likely that their choices would change and more of the alternatives would be used.[8]

This brings us to Berlin's notion of negative liberty. Policies that might constrain or shape an individual's transportation choices (road tolling, green taxes) and that would work to the benefit of society or the environment, have been largely shunned. Of Canada's total network of 900,000 kilometres of roads, the portion which is tolled amounts to a total of 344 kilometres or .04 % of the total. France has more than 6,300 kilometres of toll roads while the United States has 7,589 kilometres of toll roads.[9] Roads and highways continue to be viewed as free public goods, which governments, for political reasons, feel obligated to provide. No effort is made to link vehicle use to incremental pavement costs, environmental degradation or increased congestion. Surface transportation policy has been developed so as to directly encourage the individual to exercise his mobility options by means of the car. Not surprisingly, individuals act on these signals and incentives, and privatize the benefits (of mobility) while socializing the costs (the externalities). The upshot is we have SOVs commuters in SUVs – single occupant vehicle commuters in sport utility vehicles -- and our major urban areas, such as the Greater Toronto Area or the Greater Vancouver Region, increasingly experiencing traffic tie-ups of the kind we used to believe were restricted to Southern California. Coupled with the modest sums spent on transit and commuter rail and the lack of intermodality in our system, the logical and often the only rationale choice is to drive. Canadian governments, especially provincial ones, have embraced a vision of mobility that is unimodal (road-centric) and based on the view that the maximum amount of individual liberty should obtain with respect to discretionary car use. It is a paradigm firmly rooted in the post-War road-building boom when, for electoral reasons, governments were eager to satisfy their voters' desire for enhancements to their newfound sense of mobility. As Myers and Kent put it: "subsidies tend to go where the votes are, and the votes are in the driver's seat."[10] Finally, it would be naive to neglect to mention the addiction that

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[8] Ibid., pp.180-81.
[9] Ibid.,p.185.
[10] Norman Myers and Jennifer Kent, Perverse Subsidies; How Tax Dollars can undercut the Environment and the Economy, (Washington: Island Press, 2001), p.97.

federal and provincial treasuries have to the revenue they collect from fuel excise taxes, from licence fees, from the sales of new vehicles, and other transport related activities.

While growing private car use is a problem, especially in our major urban centers, a more egregious example of the dysfunctional character of surface transportation policy lies in the commercial freight sector.

Modal Distortion in Commercial Freight Haulage

The conditions that encourage rampant car use are also critical factors that distort modal market share in the freight sector: namely, subsidized infrastructure, a largely laissez-faire approach to emissions and pollution, and an indifference to urban blight and the destruction of greenspace resulting from sprawl and heavy traffic volumes. The unfettered licence that road users enjoy, which I contend represents an exaggerated version of negative liberty, has an equally potent impact on the commercial freight transportation market.

In the freight transport sector, the swollen market share obtained by commercial trucking reflects both the infrastructure subsidy described above, uneven tax treatment of the different surface modes, and the lack of good data on the relative pavement damage done by different categories of vehicles. It is here that the lack of vigilant oversight of the burgeoning truck sector has produced its most dysfunctional policy and market outcomes. Partly this can be explained by the fact that, since 1954, trucks have been regulated provincially - the rail, air and marine modes continue to be regulated federally - and data collection on proliferating extra-provincial truck movements has been patchy. It is easy to see why. There are more than 10,000 provincially regulated, for-hire motor carriers in Canada operating over 250,000 heavy commercial trucks. Trucks have no proprietary interest in the roadway. This is in contrast to the 60 railways in the country, all of whom are vertically integrated operations; that is they are responsible for the infrastructure they run over. The trucking industry has been a highly successful opponent within provincial capitals of any move towards a user-pay policy. They have a vested interest in maintaining the status quo, as most informed estimates suggest that they enjoy a 50% subsidy on the cost of the Canadian roadways which they run over.[11]

[11] See IBI Group in association with Boon, Jones & Associates, Full Cost Transportation and Cost-Based Pricing Strategies, November 1995, Exhibit 4.12.

Governments have continued to regard road provision as a public good and to under-price it, a position which enjoys widespread support among motorists, notwithstanding the distortions this causes in the freight market where other modes are at a serious disadvantage. However, more recent research has begun to illuminate the extent of the cross-subsidy that private motorists are providing to commercial truck users of the roadways. A U.S. study shows that while commercial trucks account for 30 percent of the vehicles on the road (passenger cars, light trucks, and buses account for 70 percent), they account for 99 percent of the pavement impact.[12] In fact, cost recovery for the heaviest commercial trucks averages only about 40 percent. The Railway Association of Canada is driven to conclude that:

> The current fee structure (fuel taxes, annual fees) does not properly reflect the costs of vehicles with different mass and operating characteristics.[13]

This conclusion is supported by a growing body of empirical evidence from within North America and abroad. However, rather than developing a methodology to improve data capture on pavement damage by vehicle type, a precursor to the politically thorny question of road user (weight-distance) charges, provincial governments continue to allow heavy goods vehicles hugely discounted access to public roads.

What explains this reluctance? The trucking industry is large, well-organized and vocal. But this is only part of the answer. It is undeniable that trucks carry, by value, a significant share (60%) of the goods exported to the US. Hence, they have evolved into a key part of the economic distribution system. However, the proliferation of the trucking industry has causes that are more systemic. Trucking has grown in response to the interplay of a variety of economic development, industrial planning, land use, transportation and environmental decisions. Amongst the contributing factors are: the growth of new edge and satellite cities on the periphery of existing urban areas, new models of outsourcing and inventory management, and the desire of local municipalities to secure development fees from "big box" warehouse, distribution and logistics facilities located in non-traditional locations served only by roads. Sprawl isn't simply applicable to residential housing; it also applies to manufacturing and warehousing operations and

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[12] American Association of State Highway Officials, Guide for Design of Pavement Structures 1993, Appendix D Conversion of Mixed Traffic to Equivalent Single Axle Loads for Pavement Design, Table D.22 cited in Railway Association of Canada, Heavy Goods Vehicles Infrastructure Costs and Revenue (Ottawa: RAC, July 2002), pp. 7-8.

[13] RAC, Heavy Goods Vehicles Infrastructure Costs and Revenue, p.11.

ultimately, according to this model's perverse logic, the only way to service these nodes is by truck. Additionally, Transport ministries everywhere espouse the basic belief that mobility can only be enhanced by adding road capacity and hence they tend to act as de facto lobbyists for the laying of new asphalt. New infrastructure spending on roads clearly benefits trucks. One of the biggest factors, though, has been the unwillingness of policy makers to impute the full cost of environmental impacts generated to the individual modes responsible. Trucking is a highly fuel intensive mode of transport and the pollution that is a by-product of its activities is absorbed by society in general.[14]

Intermodalism

If the 1950s was an era imbued with optimism about the unlimited possibilities that road travel promised, fifty years later that optimism has diminished as we have become distinctly aware of the drawbacks to rampant private vehicle and commercial truck use. Although advances in engine technology have mitigated emissions somewhat, the sheer, inexorable increase in vehicles on the road has rendered many urban areas close to high volume roads virtually unfit for human habitation. As a recent enquiry by the Toronto Public Health Department into the presence of cancer-causing chemicals in Toronto's air put it:

> Two of the ten carcinogens - benzene and polycyclic aromatic hydrocarbons (PAHs) - are present in outdoor air at levels that are ten times higher than the levels considered tolerable and should be given high priority by the City for actions that will reduce emissions. The transportation sector is likely the most significant source of emissions for both these contaminants within the City.[15]

The key is to decouple transport growth from economic growth and to develop an alternative to the present unimodal focus on roads. To do this we need a new vision for transportation that places the accent on transparency, sustainability and intermodality, characteristics that are more or less absent from the current surface transportation system. Intermodalism means linking two different modes together seamlessly to take advantage of the intrinsic benefits of each. In its

[14] Rail is five times more fuel efficient than inter-city trucking.
[15] Dr. Sheela V. Basrur, Ten Key Carcinogens in Toronto Workplaces and Environment: Assessing the Potential for Exposure, (Toronto: Toronto Public Health Department, March 2002), p.ii.

recent Transport Policy White Paper, the European Union has expressed an official commitment to intermodality stating:

> Intermodality is of fundamental importance for developing competitive alternatives to road transport. Action must therefore be taken to ensure fuller integration of the modes offering considerable potential transport capacity as links in an efficiently managed transport chain joining up all the individual services.[16]

A good example of an air-rail intermodal link is the leading-edge high-speed rail terminal situated in the heart of Terminal 2 at the Roissy-Charles de Gaulle Airport in Paris, France. In Canada, the rail-truck intermodal business units of Canadian National and Canadian Pacific Railways are heavily involved in taking trucks off the road in the Quebec City to Windsor corridor. Rail's intermodal services are essentially, roll-on/roll-off and piggy-back systems that also involve the introduction of high capacity, double-stacked container cars and multi-level auto carriers. The largest double-stacked intermodal/container train can take well over 200 trucks off our highways. On arrival at a rail intermodal yard, the freight is handed over to trucks for local delivery. Intermodal is now the largest line of business in the Canadian rail sector. It is also a key part of the equation in international movements, transporting import-export containers for ocean shipping companies.

Intermodal services have become attractive to time-sensitive businesses/shippers which are cognizant of the fact that intermodal trains have scheduled departure-arrival times, that they run over separate and dedicated corridors, and that rail's transactional times at border crossings are minimal. This has been particularly true in the wake of the September 11th attacks when commercial trucking sustained massive wait times at crossings. Companies in the retail sector (Canadian Tire, Hudson's Bay, Sears), in the automotive sector (Daimler Chrysler Canada), and in the courier market to cite just a few, have all become regular users of intermodal services. That the Class 1 rail carriers have been able to capture this business testifys to their efficiency given the extent of the highway infrastructure subsidy to commercial trucks operating on Canada's roads and trade corridors; a subsidy that is reflected in the rates trucks may offer shippers. Bear in mind as well that railways must pay all of their own infrastructure costs and then pay property taxes on these linear corridors to provincial and municipal governments. After

[16] European Commission, White Paper European Transport Policy for 2010: time to decide, (Brussels: Commission of the European Communities, September 2001), p.14.

allowing for the truck fuel used to pick up and distribute loads, intermodal is about three to four times more fuel efficient than highway truck.[17] Rail's lighter 'ecological footprint' is corroborated by the Organization for Economic Cooperation and Development in its study of Environmentally Sustainable Transportation. They write:

> Life-cycle assessments and eco-balance studies show that rail transport – including high speed rail – causes considerably less in the way of environmental impacts than road and air traffic.[18]

Governments can support goods transfer from our congested highways by investing in intermodal infrastructure. Such investments will have the added advantage of leveraging further private sector investment and reaping a range of public interest benefits, i.e reduction of congestion, pollution and accidents.

Urban Transportation

In Canada's largest cities there is a growing sense that present patterns of daily car-based commuting are no longer sustainable. The problem, though, is that existing public policy in relation to land use (low density) and highway financing and usage (no full-cost accounting) simply encourages individuals to drive. Building new or expanding existing roads is not the answer as it merely induces new traffic. This is a public policy problem and a problem of individual incentives. No single individual will alter his commuting behaviour given the mix of explicit and tacit financial incentives facing him or her. Most motorists consider gas and parking as their only marginal costs. Pursuing your rationale self interest as an individual commuter, though, leads to a "collective action" problem. Despite all of the advances in the science of traffic engineering we still inevitably confront what traffic engineers describe as the Wile E. Coyote effect:

> Just as the curve of maximum throughput – moving as many cars between two points on a road as efficiently as possible – reaches its peak, it abruptly falls of the cliff and is squashed flat against the baseline of the graph.[19]

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[17] Railway Association of Canada, Policy Options: Adapting to the Continental Market (Ottawa: RAC, May 2002), p.21.
[18] OECD, Environmentally Sustainable Transportation, p.28.
[19] John Seabrook, "The Slow Lane" in The New Yorker (New York: Conde Nast Publications,

With growing numbers of Canadians and new immigrants seeking to make their homes in or at the periphery of our largest urban areas, traffic congestion has become endemic. As the report from the Prime Minister's Task Force on Urban Issues put it:

> …transportation is a major concern – from backlogged cars and trucks on major roads through Montreal, to pressure on the few routes that connect Ottawa and Gatineau, to congestion on major roads into Calgary's downtown core, to gridlock on the Lion's Gate Bridge into Vancouver.[20]

The answer lies in moving people by public transit and commuter rail.
In Toronto, GO Transit carries 44 million passenger a year on its trains and buses and, in the process, removes 1.5 billion passenger kilometres of car trips each year from GTA roads. GO was taken back into provincial crown ownership in 2001 after operating for several years as an entity of the GTA municipalities. The difficulty is that GO is capacity constrained; its existing rail fleet is fully used during rush hour. The problem is one of insufficient financial resources. Many urban transit entities are funded by a mix of local property taxes, by direct (but irregular) transfers from more senior governments and by contributions from the farebox. The transit authorities in Vancouver (Greater Vancouver Transportation Authority) and Montreal (Agence Metropolitaine de Transport) also enjoy access to a portion of the provincial fuel excise tax revenue. On the whole, though, most transit/commuter rail systems, while covering about 60% of their operating costs from the farebox, are unable to expand their fixed plant (stations and trackage) because they lack the revenues. After all, they confront a heavily subsidized road and parking system which strongly favours car use. There is the added complication that commuter authorities lease track time from the freight rail companies and any subsequent expansion in the frequency of commuter service must make whole the adverse operating impacts on the freight business. Periodic injections of capital are not the answer and it is more clear now than ever that transit authorities require the kind of stable, long-term funding that will enable them to plan ahead and address their acute demand challenges.

September 2, 2002), p.126.
[20] Prime Minister's Caucus Task Force on Urban Issues, Canada's Urban Strategy A Vision for the 21st Century (Ottawa: Liberal Caucus, House of Commons, April 2002), p.14

The fact that Canada is the only major G-8 country in which there is no national program for investing in urban transit/commuter rail is a significant impediment to the preservation of the quality of life in our cities. This is doubly critical at a time when cities have assumed a new importance in both the demographic make-up of our own country and in the global economic pecking order. Several options have been advanced that would either involve direct federal involvement in the provision of urban transit infrastructure or result in a transfer of federal funds to municipal governments. They all pre-suppose a political will on the part of the Federal government to mobilize the financial resources at its disposal and a willingness to negotiate whatever constitutional restrictions exist to assertion of federal authority in what has previously been an area of provincial jurisdiction. The first option might be for the federal government to vacate tax room to the benefit of the municipalities so as to grant them the revenue base for dedicated funding of urban transportation infrastructure. The second might be to establish, at the national level, a permanent transportation infrastructure program, along the lines of the recently created Canada Strategic Infrastructure Fund, to which transit authorities would be eligible to apply. Neither of the first two options, however, passes the critical litmus test of incorporating full cost accounting or road user charges. The third would be to establish a New Zealand-type road fund of the kind recommended by the Canadian Transportation Act Review Panel using proceeds from gas taxes and road user fees. It is to this last option that I propose to turn my attention.

A Sustainable Solution to ending Gridlock

The solution to our surface transportation dilemma requires boldness and creativity and there is no doubt that, in the short term, it may offend some vested interests. However the price of inaction is high as the status quo in surface transportation in not sustainable in economic, environmental or social (quality of life) terms.

The model proposed below involves new policies for the funding, management and charging for the use of transportation infrastructure. It would entail cooperation between federal, provincial and municipal governments. It builds, in particular, on Recommendation 10.1 of the Canada Transportation Act Review (CTAR) Panel, contained in their chapter on 'Paying for Roads'.[21] The CTAR Panel calls for the establishment of road and transport funding and management agencies. This approach is modelled on the World Bank/New Zealand Model of road and

[21] See CTAR Panel, Vision and Balance, p.196.

transport funding and management agencies. The model establishes a central fund allocation agency with revenues from three sources:

1. the federal and provincial governments would contribute their respective road and rail fuel excise tax proceeds;
2. existing provincial and municipal budgetary expenditures on transport would be rolled in; and
3. efficient road user charges covering congestion, infrastructure and externality costs.

The central fund would in turn disburse monies to a series of sub-fund agencies: a primary highway fund; an urban transport fund; a secondary road fund; and a municipal street fund. The central fund would decide on criteria for allocating funds to the four sectors. The central fund would be governed by the following set of principles:

- users should pay for roads by means of appropriate charges and fees;
- charges for roads should be based on costs imposed, differentiated so far as practical by nature of vehicle, type of road and amount of congestion;
- managers of the road network should have responsibility for both charging and spending decisions;
- users should be involved in decisions on both charges and expenditures; and
- alternatives to road spending in other modes should be allowed to compete for road funds.[22]

Exhibit 1 below gives an idea of how the model might be structured. Assigning rail fuel taxes to the central fund is consistent with the CTAR Panel's recommendation that alternatives to road spending in other modes should be allowed to compete for road funds. Funds would be disbursed to the most socially cost-beneficial projects on the basis of their contribution to a series of key public interest criteria (see Exhibit 2). The fund would have multi-jurisdictional representation (federal-provincial-municipal) with representation from user groups as well, reflecting the fact that revenue streams originate from registration fees, fuel taxes, road tolls etc. This model might also include some demand side incentives to encourage travellers and shippers to select more sustainable modes where feasible. An example of such a demand incentive would be making monthly transit or commuter rail passes a tax deduction. The advantages of the proposed model over the present system are severalfold. First there would be more cost-effective investment

[22] Ibid., p.196.

decisions with respect to carriers and infrastructure as well as effective demand-side incentives. Roads would no longer be artificially favoured. Funding of the different modes would also be more balanced and adequate. Transparency of costs would become a permanent feature of the new model. The upshot is that by removing the systemic biases that presently distort the allocation of funds by mode, the market (travellers and freight shippers) would then decide on the most optimal mode for a particular movement or shipment.

In respect of roads that are not commercially viable (primarily local municipal and remote roads), the CTAR Panel suggests they "would continue to need some direct government funding but they too would benefit from separate management, use of objective evaluation criteria, and involvement of users in charging and spending decisions."[23]

[23] CTAR Panel, Vision and Balance, p.196.

Exhibit 1. Multi-modal transport funding agency model

Funding Sources	**Short term:** • Federal and provincial road and rail fuel taxes. Provincial license fees. • Provincial/municipal budgetary expenditures. **Long term:** • Efficient road user charges covering congestion, infrastructure and externality
Application of Funds	**Infrastructure / innovation:** • Roads, rail or alternative modes. • Passenger or freight. • Uni- or intermodal. • Most socially cost-beneficial projects.
Governance Requirements	Create multi-jurisdictional funding and management agencies. Federal/ provincial/ municipal cooperative arrangements. Major institutional reform
Recipients of Funds	Roads and transport funding and management agencies – for subsequent disbursement.

Exhibit 2. Evaluation Criteria and Related Assessment Indicators

	Criteria	Assessment Indicators	
Dimensions of sustainability		**Sustainability enhanced when, other things equal, policy leads to:**	**Indicator(s) employed:**
Environmental	Climate change	Reduced emissions of greenhouse gases (GHGs) from transport.	Megatonnes of GHG emissions per year.
	Pollution prevention	Reduced production of criteria air contaminants (CACs) from transport.	Megatonnes of CAC production per year.
	Protection and conservation	Reduced use of fossil fuels in transport.	Litres of fossil fuels consumed per year.
Economic	Efficiency	Improved productivity of transportation services through best use of all modes.	Freight tonne-kms/ (track kms of rail + lane kms of road); Passenger kms/ (track kms of rail + lane kms of road).
	Cost internalization	Increased application of full cost pricing to transportation services, incl. social costs.	Degree and consistency of application within and across modes.
	Affordability	Improved allocation of capital investment within and across modes.	Degree and consistency with which rigorous evaluation methods used.
Social	Safety and health	Reduced probability and severity of accidents.	Accident and fatality rates per capita per year.
	Access and choice	Greater availability of sustainable choices to users of transport.	Degree to which sustainable choices are increased.
Feasibility	Design considerations	Fewer new design considerations.	Number and complexity of new design considerations.
	Institutional considerations	Less institutional change.	Degree and complexity of required institutional change.

Conclusion

This paper has sought to argue that Business-as-Usual (BAU) trends in transportation in Canada are no longer sustainable. If governments remain paralyzed by inertia and drift then the future that awaits us is bleak. Canada's competitiveness in the global economy will decline in the next twenty years because our transportation system won't be able to compete. Our major cities will be characterized by gridlock because there will be too much freight and too many people in too many vehicles with too few traffic lanes. Transportation sector greenhouse gases, already the single largest component of Canada's emissions, will continue to grow and the Kyoto targets of six percent below 1990 levels will seem illusory. Toronto, which is already 40 percent paved surface, will achieve the ignominy of Los Angeles which is 60 percent paved. Traffic deaths and injuries, which cost society and the economy a fortune in suffering, insurance payouts, and lost productivity, will continue to grow. Overall ambient noise from roads will move from becoming a nuisance to an actual health hazard. These are just some of the very real outcomes that may arise if inaction and apathy remain the major policy responses to escalating private vehicle and truck use.

Bold policy changes are required. There is a clear need to marry land use to transportation policy. Low density development, and its corollary single use zoning, has given rise to a highly land-consumptive, gasoline-intensive and emissions-indifferent model. Greater densities, policies devoted to in-fill and brownfield redevelopment are the way forward. They will require resolve to implement as vested interests are bound to resist them.

Capturing the full cost of road use by private vehicles and commercial trucks is an urgently required step and the paper has sought to suggest how this might be achieved. As a recent OECD conference on sustainable transport put it, 'ensuring that rail contributes its full potential towards achieving sustainable transportation will require the integration of financial and other decision-making tools for transport and environment so that sustainability criteria are applied in transport decision-making at all levels."[24] Intermodality must become the lens through which we view all future investments in the transportation sector. Urban transit and commuter rail will require a significant and stable funding commitment, a change that will probably necessitate the involvement of the federal government.

[24] Eskisltuna Declaration on Rail Transport, adopted at the International Conference on Environmentally Sustainable Transport, organized by the OECD and UIC, Eskilstuna, Sweden, 26 October 2001.

In essence, to return to the dichotomy between negative and positive liberty, which Berlin perceived as central to the debate about the nature of liberalism, some corrective must be introduced to limit the unbridled freedom which reigns on our roads and highways. The largely hidden costs which the BAU model imposes are too onerous for society to underwrite indefinitely. A new balance must be struck which recognizes that unconstrained mobility cannot continue to subordinate values such as quality of life, environmental sustainability and financial sanity.