Toronto City Summit Alliance

Transportation & Other Infrastructure Working Group Discussion Paper

TIME TO GET SERIOUS: RELIABLE FUNDING FOR GTHA TRANSIT / TRANSPORTATION INFRASTRUCTURE

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About the Toronto City Summit Alliance
The Toronto City Summit Alliance ("the Alliance") is a not-for-profit, non-partisan group formed to address challenges to the Toronto region's social and economic future. The Alliance was created following a 2002 Summit of Toronto business and community leaders convened to consider the region's future. David Pecaut, a senior partner of The Boston Consulting Group, addressed the meeting and, after it, undertook to chair a 40-member steering committee in taking a more detailed look at the challenges facing Toronto. This group's 2003 report, *Enough Talk: An Action Plan for the Toronto Region*, focused on issues where there was a clear consensus for action and where it felt progress could be made quickly.

Since 2003, the Alliance has developed and supported initiatives addressing issues critical to the future health and wealth of the Toronto region, now under the leadership of voluntary Chair John Tory. The Alliance convenes leaders from the non profit, business, labour, education, and government sectors to work together in a spirit of collective leadership to tackle specific social and economic challenges.

Over 6000 people in the Toronto region are currently involved in projects the Alliance has developed and supported, including:

- **Toronto Region Immigrant Employment Council (TRIEC)** – Developed in partnership with Maytree, TRIEC helps integrate skilled immigrants into our economy. The Mentoring Partnership has created 5000 mentoring matches and Career Bridge has facilitated over 1000 internships (close to 80% of Career Bridge interns have secured full-time work in their field).
- **Toronto Region Research Alliance (TRRA)** – Combines efforts of governments, colleges and universities, hospitals and the private sector to attract major investments and promote research in the Golden Horseshoe.
- **Toront03 Alliance** – Raised and invested over $11 million in post-SARS tourism recovery and branding, generating over $80 million in economic benefits for Ontario.
- **Strong Neighbourhoods Task Force** – A collaborative effort of United Way Toronto, the City of Toronto and the Alliance, the Task Force identified 13 priority neighbourhoods for urgent community investment and created a plan to revitalize them.
- **Modernizing Income Security for Working-Age Adults (MISWAA) Task Force** – Initiated by the Alliance and St. Christopher House, MISWAA developed a roadmap to modernize income security to ensure the full economic participation of working-age adults, including recommendations leading to the federal Working Income Tax Benefit, the Ontario Child Benefit and a provincial dental plan.
- **Emerging Leaders Network (ELN)** – Launched in 2006, the ELN comprises over 200 City Builders: people who mobilize action, laying the social groundwork for the city of tomorrow. Part forum, part vehicle for active collaboration and part community, the ELN offers participants the advice and resources to develop collective projects to help the Toronto region succeed.
- **Luminato** – Toronto's annual festival of arts and creativity, Luminato capitalizes on the Toronto region's strong cultural and tourism assets. The festival features artists from across Canada and abroad and attracts over one million participants to the city every year.
- **Canada's first Social Entrepreneurship Summit** – Together with MaRS Discovery District, the Centre for Social Innovation and The Boston Consulting Group, the Alliance brought together over 150 Canadian social entrepreneurs and others to support social entrepreneurship and award the Schwab Foundation's first Canadian Social Entrepreneur of the Year award.
- **Greening Greater Toronto (GGT)** – Working to make the Greater Toronto Area the greenest city region in North America. Launched in June 2008, GGT is a coordinated effort to address the pressing environmental challenges in the GTA. The initiative is driving major commercial building energy and procurement initiatives and has created a domestic emissions reductions fund.
- **DiverseCity: The Greater Toronto Leadership Project** – In partnership with The Maytree Foundation, DiverseCity developed a roadmap to help ensure that the Toronto region's leadership landscape becomes as diverse as its population. The initiative consists of eight concrete, practical and measurable initiatives to help diversify the leadership of public, private, non-profit and political institutions and create the conditions for maximizing the benefits of diversity.

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EXECUTIVE SUMMARY

Why This Paper and Why Now?

The Greater Toronto and Hamilton Area (GTHA) is at a crossroads: one branch – the "high road" – leads to achieving a transformed transportation system with faster and more widespread transit service, much of it on rail; roads designed and operated to serve all movements of people and goods more efficiently and safely, including buses, trucks, pedestrians and cyclists as well as single-occupant cars; real-time information to assist travellers on their way; an integrated and more convenient fare- and revenue-collection system; and more sustainable development patterns which encourage shorter trips and greater use of transit and active transportation through compact, mixed use mobility hubs and corridors. The other branch – the "low road" – leads to continuing "business as usual" because of insufficient, *ad hoc* funding, lacking most of the major changes needed to increase travellers' choices of modes other than the private automobile, and requiring increasingly futile attempts to provide essential increases in transportation capacity, speed and reliability through auto-dominated networks, land uses and policies.

Transportation Demand is Increasingly Outstripping Supply

While the supply of roads in lane-kilometres increased by 56% between 1986 and 2006, the vehicle-kilometres of personal vehicle travel demand using those roads increased by 106%, almost twice as fast as the supply. During the same 20-year period the supply of transit grew by 18% (a substantial improvement over the 1% increase from 1986-2001), but the demand in passenger-kilometres grew by 45%, almost two and a half times faster than the supply. The result has been more traffic congestion on roads and more crowding on transit. The GTHA has become a world leader in forcing residents to waste the maximum amount of time in their vehicle of choice, whether at work or play.

Use of cars is rising faster than population growth, not least because of our inefficient use of cars – the average car carries 1.2 people in peak periods of traffic[1]. The average commute takes an average of 80 minutes in our region, worse than 18 other major international cities, including even Los Angeles[2]. The OECD has provided international recognition of our congestion problem as a productivity challenge that will affect our future competitiveness, while noting that 70% of commuters use cars and recommends creating incentives for reducing car use, and increasing access to additional revenue sources for transit investment[3].

Key results for 2001-2006 (and 1986-2001) include the following:

- Growing congestion reduced average peak period traffic speed by 17% (8% from 1986 to 2001);
- Average time spent commuting increased 16% (36% from 1986 to 2001);
- Direct annual costs of congestion continued to grow, exceeding $3 billion and exerting a growing drag on the economy ($2+ billion in 2001);

[1] Metrolinx, Agency of Government of Ontario. April 2010. "Metrolinx presentation to TCSA working group".
[2] Toronto Board of Trade. March 30, 2010. "Toronto as a Global City: Scorecard on prosperity 2010". http://bot.com/Content/NavigationMenu/Policy/Scorecard/Scorecard_on_Prosperity_2010_FINAL.pdf
[3] OECD. January 2010. "OECD Territorial Reviews: Toronto, Canada".

- Greenhouse gas tailpipe emissions from personal vehicle use increased 16% (40% from 1986 to 2001).

These results show that the average peak period speed decreased more rapidly in the five years from 2001 to 2006 than its rate of decrease in the previous 15 years, and that the average time spent commuting increased more rapidly from 2001 to 2006 than its rate of increase in the previous 15 years. Traffic conditions are getting worse at an increasing rate.

By 2031 there will be three million more people living in the GTHA along with an additional 1.5 million cars[4]. In order to make possible a high quality of life and standard of living in the GTHA, and to ensure a future that is economically, environmentally and socially sustainable, it is widely recognized that we need a regional transportation system, building on the current networks that combines mobility with prosperity. For a region to work, people and goods must be moved at reasonable speeds at an acceptable cost.

The Toronto region will not experience a reduction in the growth of congestion, let alone begin a process of decongestion, without implementing the kind of comprehensive plan found in Metrolinx's Regional Transportation Plan, one that provides multi-modal transportation options for people and goods and is funded in part by new instruments that simultaneously address the underlying problems that cause congestion and encourage the behavioural changes required, especially by drivers, to avoid total gridlock.

Promising New Developments

- **Transit/Transportation:** "*The Big Move*"[5], Metrolinx's Regional Transportation Plan (the "Big Move"), is bold, comprehensive and action-oriented, and has provided an "agreed upon transit/transportation decision framework to guide investment priorities and policy changes".

- **Funding:** The Province's unprecedented commitment of $11.5 billion to realize the Big Move, plus shared federal and provincial gas tax revenues, meant that implementation of the first group of projects was proceeding largely as planned. Unfortunately, the postponement of $4 billion of this commitment, as announced March 25, 2010 in the provincial budget, will delay the completion of several major transit projects.

- **Land Use:** More compact, mixed use development, in accordance with the provincial Growth Plan[6] and compatible municipal plans, is providing the essential basis for less auto-dependent, more transit-supportive, sustainable mobility with a wider choice of practical and attractive travel modes including active transportation.

- **Governance:** Metrolinx's comprehensive mandate, in terms of both geographic coverage and range of travel modes, has largely addressed the former problem of fragmented jurisdictions for planning and delivering transit/transportation and related land use across the GTHA.

[4] Metrolinx, Agency of Government of Ontario. April 2010. "Metrolinx presentation to TCSA working group".
[5] Metrolinx, Agency of Government of Ontario. November 2008. "The Big Move". http://www.metrolinx.com/Docs/big_move/TheBigMove_020109.pdf
[6] Ministry of Public Infrastructure Renewal, Government of Ontario. 2006 "Places to Grow: Growth Plan for the Greater Golden Horseshoe". http://www.niagara-gta.com/pdf/Growth%20Plan%20for%20the%20Greater%20Golden%20Horseshoe.pdf

- **Supporting Opinion:** The Big Move and the Growth Plan, plus streamlining of environmental assessment (EA) processes for transit projects, appear to have the broad public and private sector support necessary for continuing, timely implementation of a transformative regional transit/transportation and land use plan.

Chief Barriers to Progress

Most of the above promising steps are still insufficient to ensure success:

- **Transit/Transportation:** Lack of sustainable and predictable funding, if not addressed, will seriously undermine delivery of the Big Move.

- **Funding:** The Big Move's price tag of investment capital for system expansion ($50 billion in 2008 dollars, larger in current dollars over the next 25 years), lacks the committed, long-term, reliable funding sources necessary for implementing even its first 25%.

- **Land Use:** Developing the mobility hubs so essential to the success of the Big Move is largely outside Metrolinx's jurisdiction and conflicts /delays could jeopardize the needed major growth of transit ridership and active travel unless the current level of cooperation with relevant municipalities can be maintained and enhanced.

- **Governance:** The most significant weakness in Metrolinx's ability to deliver the Big Move is its lack of reliable long-term funding sources that will grow with the economy and travel demand to cover increasing capital and operating costs. If the agency remains largely dependent on annual provincial and federal handouts, plan delivery is extremely vulnerable to changing government priorities and the funding shortfalls that have side-tracked transit/transportation investment over the past four decades. This is compounded by chronic funding shortfalls experienced by municipalities for local transit/transportation, which is not directly part of Metrolinx's Big Move plan and implementation program. System integration at a more regional level is a related issue. Effective cooperation with Metrolinx by the municipal transit properties, in particular the TTC, will be essential if the Big Move is to be built on-time and on-budget: failing this, further restructuring may be necessary.

- **Supporting Public Opinion:** Neighbourhood opposition to major new transit/transportation projects has been experienced in a few cases. If not effectively addressed and offset by early demonstrated improvements, such opposition could coalesce and delay or stall the Big Move's implementation. Broader public and private sector support will tend to erode unless significant transit/transportation improvements are delivered on-time and on-budget.

A Serious Challenge

While major positive steps have been taken since the Alliance's 2007 Summit, the real work of recovering from decades of underfunding transit/transportation infrastructure in the GTHA is just beginning. The provincial Growth Plan and Metrolinx's Big Move provide the necessary framework for integrated land use and transit/transportation improvements, and implementation has begun. But the Big Move remains more than 75% unfunded and the key challenge is a chronic lack of long-term, reliable funding sufficient for transit/transportation capital and operating requirements, without which the Big Move's implementation is seriously at risk.

Alternative Funding Sources and Mechanisms have Differing Benefits and Risks

A fundamental problem in funding municipal transit worldwide is that, under current levels of auto ownership and use, transit fare revenues fall short of covering operating costs, and municipal property tax revenues (at viable tax rates) and development charges fall far short of meeting required capital costs plus operating costs net of fare revenues. Faced with this dilemma, cities and senior governments have adopted a significant variety of alternative funding sources for municipal transit.

Figure 3, drawn from the full paper, summarizes for each of twelve selected funding sources its yearly net revenue range, the assumed rates on which these revenue estimates are based, its significant policy advantages, and implementation issues/disadvantages to be considered. As outlined in column 4, a number of the funding sources have the important policy advantage (in addition to yielding revenue) of providing direct pricing incentives for drivers to make more sustainable travel choices (see also Sections 4.3 and 5.1 of the paper). The revenue sources are listed in declining order of estimated net revenue, with one exception: the twelfth, National Federal-Provincial Transit Strategy, is a potentially large funding source but is listed last to reflect the fact that it is not based on direct levies paid by GTHA residents/travellers but rather is a transfer of revenues from the two senior governments.

As shown, each of the five largest sources is estimated to be capable of yielding $1–2 billion/year of additional net funding for GTHA transit/transportation. The remaining seven sources range from estimated yields of $400–800 million/year to $40–100 million/year. These numerical estimates and the key policy advantages and implementation issues associated with each are presented in summary form as a basis for consideration and discussion by stakeholders and the public.

Figure 3: Potential Sources for Additional GTHA Transit/Transportation Funding

Source	Net Additional Revenue to GTHA	Basis of Estimate	Policy Advantages	Implementation Issues
1. Road Tolls on GTHA Freeways (400 series highways and municipal controlled-access highways)*	$1 – 2 B/year	10 – 20 ¢/km	Relieves congestion hot spots Revenue grows with demand Encourages more use of transit Results in increased traffic speed and road capacity Moderates road expansion spending	Traffic diversion concerns "Double taxation" concerns Much better transit required first Social equity concerns
2. Regional Gas/ Diesel Fuel Tax	$1 – 2 B/year	10 – 20 ¢/litre	Potential to reduce auto use marginally, but not focussing on hot spots Encourages energy-efficient, low emission vehicles, more transit use Easy to administer	Sales "leakage" to surrounding areas Will decline per vehicle-km as fuel-efficiency improves Best introduced when gas prices are low
3. Commercial Parking Levy	$1 – 2 B/year	$1.00 – 2.00/day per space	Reduces auto use to commercial areas Encourages more use of transit and active transportation Administratively straightforward	Employment "leakage" to areas surrounding the GTHA A different version, the Commercial Concentration Tax, was rejected in GTA in early 1990's
4. Regional Sales Tax	$1 – 2 B/year	1 – 2% in addition to the HST	Administratively stable, reliable source	No direct incentive for more sustainable transportation behaviour Sales "leakage" to surrounding areas A hard sell on top of the HST
5. High Occupancy Toll (HOT) Lanes or Express Lanes on GTHA Freeways	$400 –800 M/year for Express Lanes $200 – 400 M/year for HOT Lanes	10 – 20 ¢/km for single-occupant vehicles (HOT Lanes) or for all vehicles (Express Lanes)	Encourages car-pooling Increases person-carrying capacity and average speed on major highways Provides a toll-free alternative in the freeway network	Relatively small revenue versus infrastructure and enforcement costs
6. HST Revenue from Gas/Diesel Sales Tax (Revenue dedicated partially or fully to GTHA transit)	$400 – 600 M/year	May 11/10 news report ** of $895 M additional gas tax revenue anticipated from 2010/11 HST	Same as above for Regional Gas/Diesel Fuel tax Would be timely if dedicated as of July 1, 2010 or shortly thereafter	As above except province-wide application of HST avoids fuel sales "leakage" to areas surrounding the GTHA
7. Central Area (C.A.) Congestion Levy on private vehicles entering Planning District 1*** 6:30 am–6:30 pm Monday – Friday	$250 – $500 M/yr	$5 – 10/vehicle entry-charge at cordon	Reduces Central Area congestion Encourages more use of transit and active transportation Improves mobility in Central Area	Potential employment loss from Central Area Congestion/parking pressure in areas surrounding the Central Area Better transit needed first Implementation cost and payment evasion issues

Source	Net Additional Revenue to GTHA	Basis of Estimate	Policy Advantages	Implementation Issues
8. Vehicle Registration Fee (Varies with vehicle GHG emission levels)	$200 – 400 M/year	$100 –200/year per vehicle	Stable, reliable source Encourages low-emission vehicles Easy to administer	Does not moderate amount of use of the vehicle
9. Value Capture Levy (provides revenue from higher property values/taxes in areas served by higher-order transit)	$50 – 100 M/year	N/A	Encourages compact development and increased transit use May reduce land speculation Easy to administer	Uncertainty in estimating increased value Upward pressure on rents May force out small business and low income residents
10. Utility Bill Levy	$50 – 100 M/year	$20 – 40/year per household	Stable, reliable source Easy to administer	No direct incentive for more sustainable driver behaviour
11. Employer Payroll Tax in Areas within walking distance of rapid transit.	$40 – $80 M/year	$100 – 200/year per full time employee	Stable, reliable source Partially borne by incoming workers who benefit from improved transit Administratively straightforward	Higher costs, potential loss of jobs in taxation zones Benefits to local employees may not compensate for lower wages.
12. National Federal-Provincial Transit Strategy (Similar to Ontario's former funding formula, but based on a national federal/ provincial agreement	$1 – 2 B/year	25 – 50% of transit capital costs 25 – 50% of net transit operating costs	Administratively straightforward Stable, relatively reliable source Provides GTHA residents with a long-term commitment for reliable funding plus a stable policy framework from the federal and provincial governments	Difficult in context of large federal/provincial deficits Could be turned off, as happened in 1998 in Ontario, although less easily because two senior government levels are committed No direct incentive for more sustainable transportation behaviour

***Area-Wide Road Pricing is a larger scale road pricing option for possible subsequent implementation, as discussed in Section 4.3**

**The Canadian Press. "Ontario NDP says HST will boost gas price". May 10, 2010. CBC News. http://www.cbc.ca/canada/toronto/story/2010/05/10/ontario-hst.html

***Planning district 1 is the Central part of downtown Toronto, Bounded on the west by Bathurst Street, on the North by Dupont Street and Rosedale Valley Road and on the east by the Don Valley Parkway; south of Queen Street and Eastern Avenue it includes the entire waterfront between the west end of the Canadian National Exhibition and Woodbine Avenue including the Toronto Islands.

Source: Estimates by TCSA Working Group, drawing also on other sources.

What are the Preferred Funding Sources and Mechanisms for the Big Move?

Other orders of government are providing partial funding for the Big Move. Municipalities have also received new transfers from other orders of governments in recent years such as the provincial and federal gas tax transfers to municipalities and the federal GST rebate. There is clearly a need for further revenue stream diversification to fill the funding gap if the Big Move is to be put in place.

As we look toward choosing preferred funding options to put a comprehensive regional transportation plan for the 21st century in place, it is clear that any new instruments will have to

pass two tests to have a chance at viability:

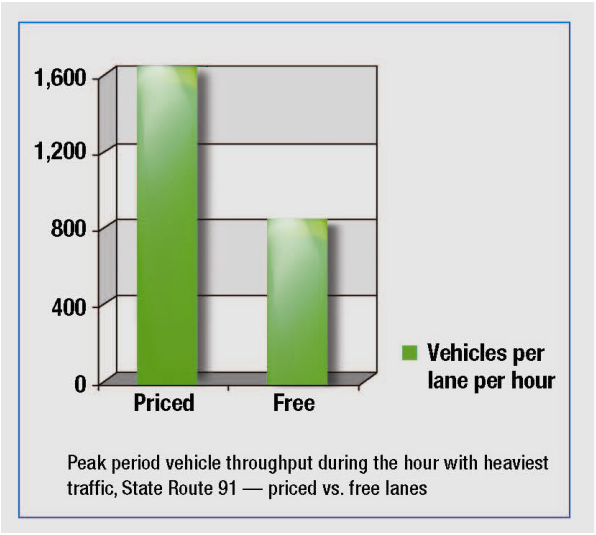
1. New funding instruments must be fair, effective, efficient, transparent and accountable, and seen to be so.

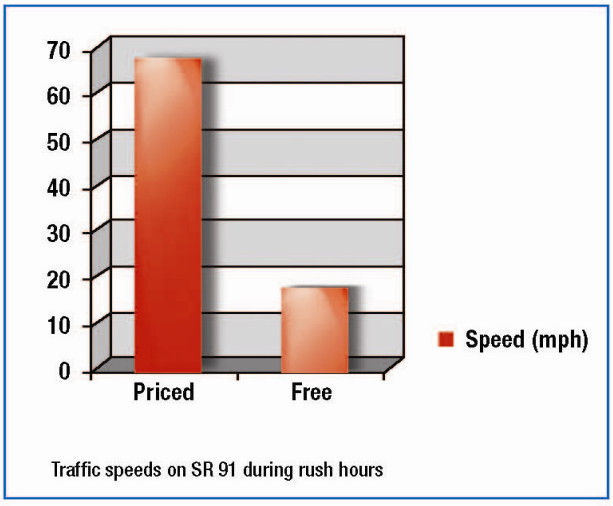
2. New funding instruments, or at least some of them, need to do more than simply provide the quantum of funding required for the Big Move; they need to also help to moderate increasing congestion, and possibly achieve stable or reduced congestion levels in some corridors.

Figure 6, drawn from the full paper, demonstrates the significant travel time and road capacity benefits experienced by travellers on the high-occupancy toll (HOT) lanes of S.R. 91 in Orange County, California. Similar benefits are experienced on other tolled roads. All travellers and residents in the GTHA will benefit from pricing incentives for travellers to avoid congested roads and times, make more use of transit, car-pooling and/or active transportation, and drive low-emission cars as well as the major transit/transportation improvements and economic, environmental and social benefits that will be provided by the Big Move if funding can be found to implement it.

Passing these two tests will help to ensure the long-term acceptability of the selected instruments by proving to the paying public that the value proposition they have been promised by investing in the Big Move is being attained.

Figure 6: Performance Benefits of Express Lanes on California S.R. 91





Source: "Congestion Pricing, A Primer": Federal Highway Administration, December 2006.

That promise of the value proposition of the Big Move includes:

- increased access to a transport system that is affordable, effective, integrated and multi-modal;

- a seamless and coordinated balance of transportation choices, including transit, walking and cycling;

- the easing of congestion and commute times; and

- reduction in transportation-related emissions of smog precursors and greenhouse gases.

Though it may be possible to reach the required revenue levels by implementing just one or perhaps two of the new tools, a broader approach should also be considered. The optimal mix of instruments will have the best chance of not only providing the required quantum of revenue on a net basis but of also having measurable effect on assisting decongestion, over and above that provided by the building of new transit infrastructure alone.

Next Steps

The Alliance has prepared this paper to provide information on the accelerating growth of GTHA traffic congestion, the urgent need to implement Metrolinx's Regional Transportation Plan and major benefits from doing so, the substantial funding shortfalls threatening its implementation, and alternative funding sources which could be considered to finance the Big Move and related improvements. Next steps will focus on wide public dissemination of this information and discussion of the pros and cons of the alternatives, to help reach informed decisions on an investment strategy for GTHA's future transit/transportation system.

Initially, the paper will feed the Alliance's Roundtable meeting, scheduled for July 14, 2010, and involving some 100 members of the public and stakeholder groups. During the following months it will provide input to further study and discussions leading to the Alliance's Summit Meeting being held February 10-11, 2011.

It will be important during this process to identify and apply an agreed set of evaluation criteria for assessing and comparing the alternative funding sources. Ten such criteria are suggested in this paper's final section. Roundtable and Summit participants will be encouraged to consider these and other possible criteria as they compare and discuss the various possible funding sources.

1. INTRODUCTION

1.1 Why This Paper and Why Now?

The Greater Toronto and Hamilton Area (GTHA) is at a crossroads: one branch – the "high road" – leads to achieving a transformed transportation system with faster and more widespread transit service, much of it on rail; roads designed and operated to serve all movements of people and goods more efficiently and safely, including buses, trucks, pedestrians and cyclists as well as single-occupant cars; real-time information to assist travellers on their way; an integrated and more convenient fare- and revenue-collection system; and more sustainable development patterns which encourage shorter trips and greater use of transit and active transportation through compact, mixed- use communities (mobility hubs) and corridors. The other branch – the "low road" – leads to continuing "business as usual" because of insufficient, *ad hoc* funding, lacking most of the major changes needed to increase travellers' choices of modes other than the private automobile and requiring increasingly futile attempts to provide essential increases in transportation capacity, speed and reliability through auto-dominated networks, land uses and policies.

The prosperity, sustainability and liveability of Canada's largest urban region will be hugely affected for the next century by which branch we choose. The stakes are high, and well worth the effort and consultation needed to get it right. Lacking this effort we will, by default, continue along the "low road" of an increasingly inadequate transit/transportation system with the resulting economic, environmental and social problems. The "high road" holds considerable promise but will require an informed public and body-politic to examine and choose alternatives, particularly in terms of funding and delivering the necessary improvements.

Building on its diversity and track record as an objective forum for addressing public policy issues in the GTHA, the Alliance has prepared this paper, not to recommend specific funding/delivery actions, but rather to highlight key trends, challenges, and opportunities, as a means of encouraging and informing the widespread discussion and debate that will be essential. The time is right for this input, as congestion worsens at an increasing rate, elections are imminent at all three levels of government and politicians will, of necessity, have to take positions on what to do about it.

2. SITUATION SUMMARY

2.1 Transportation Demand is Increasingly Outstripping Supply

RECENT TRENDS

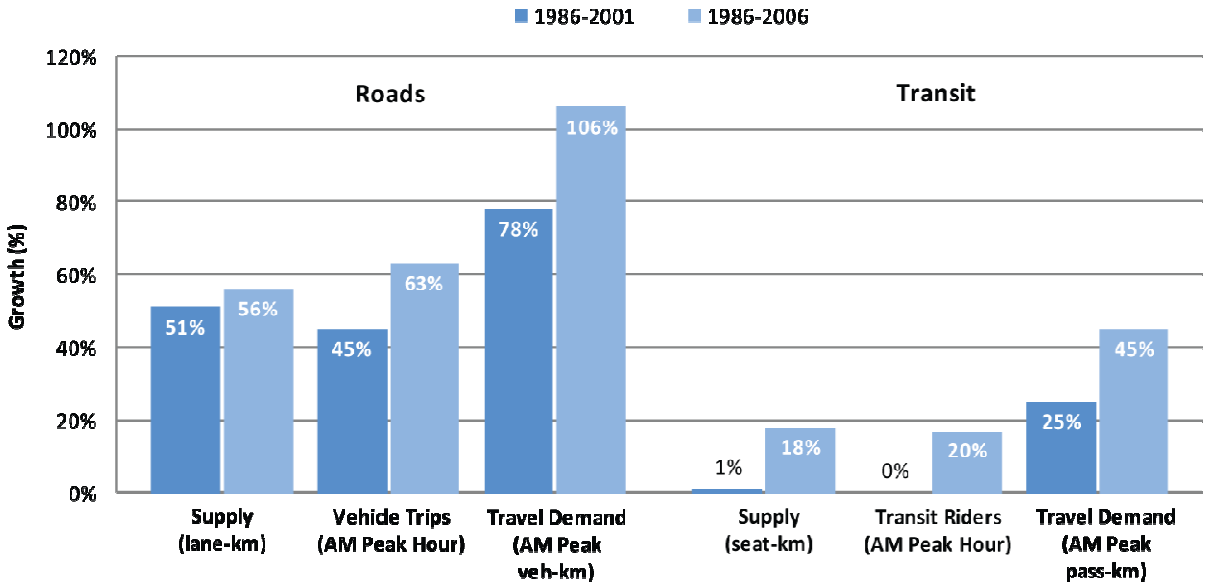
The Alliance's 2007 Summit briefing paper on Transit and Transportation Infrastructure[7] showed that transportation demand increased much more than the supply of roads and transit during the period 1986- 2001. Survey data now available for 2006 shows an acceleration of these trends in

[7]Toronto City Summit Alliance. February 2007. "Transit and Transportation Infrastructure Discussion Paper for Toronto Summit 2007". http://www.torontoalliance.ca/summit_2007/pdf/Transportation_Long_Paper.pdf

2001-2006: in spite of incremental road expansions and purchases of additional buses, rapid growth of demand (driven by 100,000 more people and 50,000 more cars each year) continues to outstrip supply.

As shown in Figure 1, while the supply of roads in lane-kilometres increased by 56% between 1986 and 2006, the vehicle-kilometres of personal vehicle travel demand using those roads increased by 106%, almost twice as fast as the supply. During the same 20 year period the supply of transit grew by 18% (a substantial improvement over the 1% increase 1986-2001), but the demand in passenger-kilometres grew by 45%, almost two and a half times faster than the supply. The result has been more traffic congestion on roads and more crowding on transit.

Figure 1: 1986-2006 GTHA Transportation Supply and Demand trends



Sources: Data Management Group and MTO GGH Model Networks and Assignments, 1986, 2001 and 2006. "Transportation Tomorrow Surveys, Travel Demand Modelling".

Key results for 2001-2006 (and 1986-2001) include the following:

- Growing congestion reduced average peak period traffic speed by 17% (8% from 1986 to 2001);
- Average time spent commuting increased 16% (36% from 1986 to 2001);
- Direct annual costs of congestion continued to grow, exceeding $3 billion and exerting a growing drag on the economy ($2+ billion in 2001);
- Greenhouse gas tailpipe emissions from personal vehicle use increased 16% (40% from 1986 to 2001).

These results show that the average peak period speed decreased more rapidly in the five years from 2001 to 2006 than its rate of decrease in the previous 15 years, and that the average

time spent commuting increased more rapidly from 2001 to 2006 than its rate of increase in the previous 15 years. Clearly, traffic congestion delays and related costs are going from bad to worse at an increasing rate. "Business as usual" projections to 2031 by Metrolinx and others show a continuation of these ominous trends.

2.2 Recent Accomplishments are Seriously Threatened

PROMISING NEW DEVELOPMENTS

- **Transit/Transportation**: "*The Big Move*"[8], Metrolinx's Regional Transportation Plan (the "Big Move"), is bold, comprehensive and action-oriented, and has provided the "agreed upon transit/transportation decision framework to guide investment priorities and policy changes" which was absent three years ago.

- **Funding:** The Province's unprecedented commitment of $11.5 billion, plus shared federal and provincial gas tax revenues, meant that implementation of the first group of Metrolinx projects was proceeding largely as planned. Unfortunately, the postponement of $4 billion of this commitment, as announced March 25, 2010, in the provincial budget, will delay the completion of several major transit projects. On May 19, 2010, the Metrolinx Board approved a new timeline – "Achieving 5 in 10" – under which the first five projects – York VIVA BRT, Sheppard East LRT, Finch LRT, Scarborough LRT and Eglinton Crosstown LRT – will be completed in 10 years, by 2020. The timeline was also approved by the Province on June 14.

- **Land Use**: More compact, mixed use development, in accordance with the provincial Growth Plan[9] and compatible municipal plans, is providing the essential basis for less auto-dependent, more transit-supportive, sustainable mobility with a wider choice of practical and attractive travel modes including active transportation. Under the Metrolinx Act, municipalities in the GTHA are required to have transportation master plans that are consistent with the Ministry of Transportation's policy statements in this regard.

- **Governance**: Metrolinx's comprehensive mandate, in terms of both geographic coverage and range of travel modes, has largely addressed the former problem of fragmented jurisdictions for planning and delivering transit/transportation and related land use across the GTHA.

- **Supporting Public Opinion**: The Big Move and Growth Plan, plus streamlining of environmental assessment (EA) processes for transit projects appear to have the broad public and private sector support necessary for continuing, timely implementation of a transformative regional transit/transportation and land use plan.

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CHIEF BARRIERS TO PROGRESS

Most of the above promising steps are still insufficient to ensure success:

- **Transit/Transportation**: Lack of sustainable and predictable funding, if not addressed, will seriously undermine delivery of the Big Move. See **Funding** and **Governance** below.

- **Funding**: The Big Move's price tag of investment capital for system expansion ($50 billion in 2008 dollars, larger in current dollars over the next 25 years), lacks the committed, long-term, reliable funding sources necessary for implementing even its first 25%; for example, the Yonge subway extension to Richmond Hill, one of the Big Move's first 15 projects originally planned to be funded by the provincial $11.5 billion commitment, is currently unfunded. Operating and maintenance costs of existing and new transit – at both the regional and local levels – require adequate, reliable funding. The recent provincial budget postponement of $4 billion in transit funding reinforces the need for funding sources that grow with travel demand and are not subject to economic cycles and annual budget fluctuations.

- **Land Use**: Developing the pedestrian-, cycling- and transit-supportive communities and mobility hubs that are so essential to the success of the Big Move is largely outside Metrolinx's jurisdiction, and conflicts/ delays could jeopardize the needed major growth of transit ridership and active travel unless the current level of cooperation with relevant municipalities – as mandated by provincial policy – can be maintained and enhanced.

- **Governance**: The most significant weakness in Metrolinx's ability to deliver the Big Move is its lack of reliable long-term funding sources that will grow with the economy and travel demand to cover increasing capital and operating costs. If the agency remains largely dependent on annual provincial and federal handouts, delivery of the Big Move is extremely vulnerable to changing government priorities and the funding shortfalls that have side-tracked transit/transportation investment over the past four decades. This is compounded by chronic funding shortfalls experienced by municipalities for **local** transit/transportation, which is not directly part of Metrolinx's Regional Transportation Plan and implementation program but is essential for its success. System integration at a more regional level is a related issue. Effective cooperation with Metrolinx by the municipal transit authorities, in particular the TTC, will be essential if the Big Move is to be built on-time and on-budget: failing this, further restructuring may be necessary.

- **Supporting Public Opinion**: Neighbourhood opposition to major new transit/transportation projects has been experienced in a few cases. If not effectively addressed and offset by early demonstrated improvements, such opposition could coalesce and delay or stall the Big Move's implementation. Broader public and private sector support will tend to erode unless significant transit/transportation improvements are delivered on-time and on-budget.

A SERIOUS CHALLENGE

While major positive steps have been taken since the Alliance's 2007 Summit, the real work of recovering from decades of underfunding transit/transportation infrastructure in the GTHA is just beginning. The provincial Growth Plan and Metrolinx's Regional Transportation Plan provide the necessary framework for integrated land use and transit/transportation improvements, and implementation has begun. But the Big Move remains more than 75% unfunded and operating and maintenance costs – at both the regional and local levels – will grow as transit coverage, service levels and ridership increase. The key challenge is a chronic lack of long-term, reliable funding sufficient for transit/transportation capital and operating requirements, without which the Big Move's implementation and the expanded municipal transit necessary to support it are seriously at risk.

2.3 Jurisdictional Progress, but Challenges Remain

GROWING INVOLVEMENT AT ALL LEVELS

There has been a general heightening of public awareness of the links between transportation and competitiveness, quality of life and a sustainable environment. This consciousness raising process has resulted in concrete action at the federal, provincial and municipal levels, with more activity in the transit/transportation space than has been seen in a generation. For example:

- A number of **federal** cooperation, investment and funding programmes were devised, such as the full GST rebate to municipalities, the Federal Gas Tax Transfer, FLOW co-funding, the Canada Strategic Infrastructure Fund providing co-funding to the GO Rail Improvement Program and Union Station Upgrade, the Building Canada Plan and Fund (though the Canada-Ontario Infrastructure Contribution Agreement is apparently still unsigned as of early June, 2010), co-funding of the Sheppard East LRT, and TTC Strategic Capital Projects co-funding.

- At the **provincial** level, we have seen the introduction of dedicated Gas Tax Funds for public transportation, inclusion of transit/transportation in selection of key policy platforms including the Greenbelt Act and the Greenbelt Plan, Places to Grow Act and Growth Plan for the Greater Golden Horseshoe, the establishment of Metrolinx and the adoption of the Regional Transportation Plan with $9.5 billion of committed funding to implement the Big Move (though now partially deferred following the March 2010 Ontario Budget), with an additional $2 billion earmarked subject to budget cycles, and with further detailed benefits case analyses for a range of transit projects.

- **Municipally**, the Toronto Official Plan 2006[10] provided for expanded public transit and no new roads and the Toronto Transit City Plan were introduced in 2007. New streetcars have been ordered and major projects, including the Union Station upgrade and the Spadina Subway extension, have been started. Hamilton, Mississauga, Brampton, and York and Halton regions are all in various stages of advancing their transit plans.

[10] City of Toronto. 2007. "Toronto Official Plan". http://www.toronto.ca/planning/official_plan/pdf_chapter1-5/chapters1_5_aug2007.pdf

Transformational events have been the establishment of Metrolinx as a single point of contact for regional transportation/transit issues that is independent from government; the adoption of the Regional Transportation Plan; the reconstitution of the Metrolinx Board from a planning into an implementation Board; and the announcement of initial funding for the Big Move's implementation.

LACK OF A NATIONAL FEDERAL – PROVINCIAL TRANSIT STRATEGY

While the National Policy Framework for Strategic Gateways and Trade Corridors[11] has provided a framework for federal spending for transportation (primarily highways) in and through the GTHA, Canada – alone among OECD countries – continues to lack a national transit strategy focussing on public transportation in our urban areas, where 80% of Canadians live and most of our wealth is created. The lack of such a strategy, and the defined, more predictable **long-term** funding plus national policy support that it would provide, puts Canada at a distinct disadvantage relative to other OECD countries – and rapidly-growing developing countries – regarding the extent and quality of our transit systems and the competitiveness of our urban areas in terms of economic, environmental and quality of living measures.

The core issues underlying the lack of a national transit strategy appear to be the absolute quantum of funding available, whether the federal government will fund municipalities directly, where municipalities will find their matching funds for capital projects (including state of good repair and rehabilitation), the effectiveness with which municipalities are able to deliver projects on-time and on-budget, their ability to meet operating costs given the shortfall of fare box revenue, and accountability (ensuring that the funds will be directed to the intended purpose in cases like the GST Rebate funds, which are not earmarked).

Reflecting Canada's federated structure, both the federal and provincial levels of government would have to sign on to make a national transit strategy work; to emphasize this, we have added the words FEDERAL-PROVINCIAL to the title. Ideally, Canada's municipalities would be actively involved in developing the strategy, but the necessary long-term funding and policy commitment would have to be made at the federal and provincial levels reflecting their defined taxing and policy roles.

ACCOUNTABILITY ISSUES

Implementing the Metrolinx Regional Transportation Plan requires buy-in from local transit authorities in the region and the integration of local transit initiatives into the Big Move. The Regional Transportation Plan's top 15 priorities include the projects funded under the federal FLOW–Province initiative and rapid transit projects in Durham, Halton, Peel, York, Hamilton and Toronto[12], emphasizing the need for local involvement and cooperation. In this regard, on June 4, 2009, the Deputy Minister of Transportation wrote letters to the City Manager of the City of Toronto and to the Chief Administrative Officer of York Region, designating five of the Big Move projects as regional transit projects and outlining five principles that will guide the new framework for implementing the Big Move. These principles are: (i) provincial (Metrolinx) ownership and control of the projects; (ii) provincial commitment to partnerships, cooperation

[11] Government of Canada. 2009. "National Policy Framework for Strategic Gateways and Trade Corridors". http://www.canadasgateways.gc.ca/docs/NationalPolicyFramework.pdf

[12] Government of Ontario. This includes some of the projects under in the Transit City initiative. http://news.ontario.ca/mto/en/2010/04/information-on-flow-and-other-transit-projects-in-the-greater-toronto-area.html

and consultation; (iii) Metrolinx responsibility for project scope, budget and timing decisions; (iv) a customer-focussed and rider-oriented approach; and (v) clear project governance including the role of Infrastructure Ontario. If local cooperation is forthcoming, this new model provides a reasonable basis for delivering projects on-time and on-budget.

As Toronto's largest employer, the third largest transit authority in North America based on ridership, and carrier of 75% of daily transit trips in the GTHA, the Toronto Transit Commission (TTC) is a major stakeholder in any discussion of regional transportation as is its owner, the City of Toronto, which also owns Union Station, Canada's busiest transportation hub. Reflecting recent events and media coverage, the public is strongly engaged on issues related to the governance of the TTC, its customer service focus on the operational side and its ability to deliver projects on-time and on-budget on the capital side. Achieving and maintaining an effective working relationship between TTC/Toronto and other levels of government and – most importantly – with Metrolinx is necessary to advance the Big Move.

2.4 What Can We Do About It?

OPPORTUNITIES FOR ACTION

With Metrolinx in place and its Regional Transportation Plan adopted, there remain two fundamental and interconnected objectives: (i) securing the money; and (ii) implementing the Big Move. Now is the time to engage the public and rally support for Metrolinx's efforts to achieve both objectives, with particular emphasis on the following actions, which are offered for discussion and further definition (e.g. in terms of who does what):

- **On Funding:**

  - Establishing adequate, reliable, long-term funding sources that will grow with transportation demand and are sufficiently under Metrolinx's control to ensure continuing, coordinated and timely implementation of the Big Move.

  - Exploring and publicizing a full range of funding tools and delivery mechanisms that will harness such tools in a manner which is efficient, effective, transparent and accountable, highlighting those that encourage travellers to use the transport system more sustainably while creating dependable revenue streams that can support the full range of public/private business models for design, financing, construction and operation consistent with a financially viable transportation system.

  - Supporting a National Federal-Provincial Transit Strategy[13], as proposed by the Big City Mayors' Caucus of the Federation of Canadian Municipalities and others, to provide for federal involvement in predictable, permanent transit funding and other supportive policies in cooperation with the provinces/territories and municipalities.

[13] The Council of the Federation. November 2005. "Looking to the Future: A Plan for Investing in Canada's Transportation System". http://www.th.gov.bc.ca/publications/NTS/2710-NTS_Booklet.pdf

- **On Regional Transportation Plan Implementation:**

  - Stressing the urgent need to build a comprehensive regional rapid transit network including: a phased program of upgrading the GO Rail system, possibly including electrification (report due in December 2010); GO service expansion; new LRT lines; and related strategies to enhance and expand active transportation, improve the efficiency of the road and highway networks, create an ambitious transportation demand management system, build communities that are pedestrian, cycling and transit supportive with universal access, and improve goods movement within the GTHA and with adjacent regions.

  - Fully implementing an integrated transit fare collection system – building on the PRESTO system with enhancements – and schedules to provide seamless transit services throughout the GTHA while exploring creative ways of increasing customer service, preferences and loyalty to the transit system (e.g. London's Oyster Card, 21st century information systems).

  - Working with Metrolinx and other participants to jointly organize and sponsor transit/ transportation conferences and seminars to discuss Regional Transportation Plan implementation and the need for alternative funding sources – including a full range of user fees and delivery mechanisms as noted above – and strategies to provide objective information to the public and otherwise assist in achieving sufficient buy-in for productive political decisions on Regional Transportation Plan implementation and funding arrangements.

3. SUSTAINABLE PROSPERITY AND PERSONALIZED BENEFITS

3.1 Achieving the Big Move: What's In It for Society?

The Big Move [14] puts forward a comprehensive and common vision for transportation in the Greater Toronto and Hamilton Area (GTHA). The aim of the Big Move is to achieve a transportation system that is effective, integrated and multi-modal. At its core is a recognition that investment in transit and transportation infrastructure across the region has not kept up with the demands placed on the system by rapid growth. That growth will continue: by 2031 there will be three million more people living in the GTHA along with an additional 1.5 million cars[15], a 50% increase in both. In order to make possible a high quality of life and standard of living in the GTHA, and to ensure a future that is economically, environmentally and socially sustainable, it is widely recognized that we need a regional transportation system building on the current networks that combines mobility with prosperity.

For a region to work, people and goods must move at reasonable speeds at an acceptable cost. The current level of congestion on GTHA arteries has been noticeably worsening over the last twenty years. The region will not experience a reduction in the growth of congestion, much less begin a process of decongestion in some corridors without implementing the kind of

[14] Metrolinx, Agency of Government of Ontario. November 2008. "The Big Move". http://www.metrolinx.com/Docs/big_move/TheBigMove_020109.pdf
[15] Metrolinx, Agency of Government of Ontario. April 2010. "Metrolinx presentation to TCSA working group".

comprehensive strategy found in the Big Move, one that provides multi-modal transportation options for people and goods, and is funded in part by new instruments that simultaneously address the underlying problems that cause congestion and encourage the behavioural changes required, especially by drivers, to avoid total gridlock.

Ever-increasing congestion in the GTHA is an undeniable problem. Use of cars is rising faster than population growth, not least because of inefficient use of cars – the average car carries 1.2 people in peak periods of traffic[16]. A recent report states that the GTHA commute takes an average of 80 minutes/day, worse than 18 other major international cities, including even Los Angeles[17]. The OECD has provided international recognition of our congestion problem as a productivity challenge that will affect our future competitiveness. The OECD noted that 70% of commuters use cars and recommended creating incentives for reducing car use and increasing access to additional revenue sources for transit investment[18]. The current direct plus indirect cost of congestion has been estimated at $6 billion per year will continue to rapidly increase – $15 billion per year by 2031 – under a business as usual scenario[19].

Like much of North America, the historic patterns of growth in the GTHA have been closely intertwined with the growth of automobile use in the last century. It is widely recognized that, over the course of this new century, as pressures on our current energy system increase and environmental concerns are taken more seriously, that pattern needs to transition to one that encourages less sprawl and allows denser forms of living: implementing the comprehensive Regional Transportation Plan is a key component for this to be successful.

Access to frequent, fast and affordable transit is also necessary for equity and social cohesion. Metrolinx has recognized that the Big Move cannot be comprehensive unless it aims to provide service to low-income or at-risk populations that have been previously underserviced. In what has been described in Toronto as a new “city of disparities”[20], it is increasingly important that access to high quality public transit is made more available across the entire region (especially to those who cannot afford to operate cars), and to ensure that those most in need do not have the added disadvantage of limited access to the public transportation system. Transit is one-third to one-half as expensive as cars for commuting in ten major Canadian cities[21].

3.2 Achieving the Big Move: What’s In It for Me and My Family?

Congestion is not only bad for the economy, sustainable development patterns and social equity. It also severely tests the quality of life for individuals. Families constantly experience an unsustainable time squeeze that is exacerbated by long commute times for both drivers and transit users. And as noted above, these times are worse than even Los Angeles, as well as London, New York and Montreal. The GTHA has become a world leader in forcing residents to waste the maximum amount of time in their vehicle of choice, whether at work or play.

[16] Metrolinx, Agency of Government of Ontario. April 2010. “Metrolinx presentation to TCSA working group”.
[17] Toronto Board of Trade. March 30, 2010. “Toronto as a Global City: Scorecard on prosperity 2010”. http://bot.com/Content/NavigationMenu/Policy/Scorecard/Scorecard_on_Prosperity_2010_FINAL.pdf
[18] OECD. January 2010. “OECD Territorial Reviews: Toronto, Canada”.
[19] Metrolinx, Agency of Government of Ontario. April 2010. “Metrolinx presentation to TCSA working group”.
[20] Hulchanksi, David. December 2007. “The Three Cities within Toronto: Income Polarization among Toronto’s Neighbourhoods, 1970-2000”. Centre for Urban & Community Studies, University of Toronto.
[21] Metropolitan Knowledge International. January 2010. “The Economic Impact of Transit Investment”.

There are other serious problems derived from our increased use of cars and the concomitant congestion. The effect on our environment is well-documented, including increasing greenhouse gas emissions and the pollutants that generate smog. Another unhealthy outcome due to our increased use of cars is the clear link to encouraging more sedentary lifestyles which in turn lead to increases in obesity, with impacts both on individuals' well-being and on societal costs of healthcare.

A high quality of life and standard of living has always been one of the selling points for the GTHA in attracting to our region the world's best. Both standards are at risk if we don't quickly move to fix our transportation problems through the Regional Transportation Plan. If our region becomes increasingly unliveable, especially in comparison to North American competitor cities, then we will be quickly faced with a vicious circle of economic and social decline. We all want to live in a place that is economically, environmentally and socially sustainable: a working transportation system is a key part of ensuring that sustainability. But a high quality of life and standard of living are not easy to attain or maintain: and their retention requires smart, strategic public investments on a timely basis.

3.3 Weighing Costs and Benefits Requires an Informed Public

We know that the Big Move's capital costs are estimated at $50 billion or more over the course of the next twenty five years. We also are becoming more aware of the economic costs of inaction on transportation issues, especially congestion, through research and reports from respected bodies such as the OECD, the Toronto Board of Trade, and the Conference Board of Canada.

As citizens, we also know from our own experiences and other anecdotal evidence that it is increasingly more difficult to travel throughout the region: it takes longer to get to work, longer to visit relatives across town, and longer to take the kids to soccer practice. There are more cars to contend with when biking or walking. Our children are dealing with more air pollution than we remember from our own childhood. Indeed, we have reached a turning point in realising this situation cannot go on and that we have to find solutions.

One of the solutions is to implement the Regional Transportation Plan. Senior governments, especially Ontario, have come to the table to fund the front end of the plan, with investments that are large but are unfortunately insufficient. The stark reality is that the Big Move remains 75% unfunded. This requires remedy if the benefits of the Big Move are to be reaped. Additional funding streams are crucial.

It is increasingly urgent that political leaders, stakeholder groups and the public at large be alerted, more fully armed and prepared to deal with accurate, objective information about the personal and societal benefits of building the Big Move on schedule, the alternative funding sources that will make this possible, and the rapidly growing costs – again both personal and societal – of deferring action because we can't find the money. Timely investments now will pay big dividends immediately and in perpetuity if we can find the will to move forward.

4. FUNDING OPTIONS AND IMPLICATIONS

4.1 Current Funding Sources are Inadequate

As noted in the Metrolinx Investment Strategy (Chapter 6 of the Big Move), implementation of the Regional Transportation Plan will require capital investment over the 25-year period (2008 – 2033) of $2 billion/year (all costs stated in 2008 dollars).

Figure 2 presents broad estimates of GTHA transit funding requirements and shortfalls. The top row focuses on "Regional Transit" (defined as the Metrolinx Regional Transportation Plan plus GO Transit) drawing on the numbers from Metrolinx's Draft Investment Strategy, plus capital and operating costs for GO Transit. As shown, capital costs (for expansion plus rehabilitation) are estimated at $1.1 billion in 2008-9, rising to $2.0 billion/year for the period 2010-2015 inclusive, drawing on committed funding mainly from the Province; required annual expenditures are shown as $2 billion/year during the remaining build-out period 2016-2033, and the same annual funding shortfall during the latter period, assuming that there is no further committed funding following 2015. Current capital plus operating expenditures are broadly estimated to increase from $1.5 billion in 2008-9 to an average of $2.5 billion/year during 2010-2015, and averaging $3.0 billion/year during 2016-2033. With no further commitment of funding beyond 2015, the average annual funding shortfall during 2016-2033 would also be $3.0 billion: $2.0 billion in capital costs and $1.0 billion in operating costs.

The bottom row of Figure 2 shows similar broad estimates for the TTC and local transit throughout the GTHA. Capital plus operating costs are estimated to increase from about $2.5 billion in 2008-9 to $3.0 billion/year in 2010-2015 and $3.5 billion/year in 2016-2033. If we assume that current funding sources for the TTC and local transit (e.g. property taxes, fare revenues, federal/provincial funding) continue at the 2008-9 level through 2033, there would be a shortfall of about $0.5 billion/year during the 2010-2015 period and $1.0 billion/year during the 2016-2033 period. Note that TTC and GO Transit fare revenues – at about 75% and 80% of gross operating costs, respectively – achieve the highest operating cost recovery in North America, but this will tend to decline as networks are expanded and service frequencies are increased.

Figure 2: GTHA Transit Funding Requirements (Billions of 2008 Dollars/Year)

	Current (2008/9) Expenditures	Estimated (2010-2015) Annual Expenditures	Required (2016-2033) Annual Expenditures	Annual Funding Shortfall (2016 – 2033)
Regional Transit (Metrolinx including GO Transit)				
Capital Costs (for expansion and rehabilitation)	1.1	2.0	2.0	2.0
Gross Operating and Maintenance Costs (fare-revenues not netted out)	0.4	0.5	1.0	1.0
Total Per Year	1.5	2.5	3.0	3.0 *
TTC and Local Transit				
Capital Costs (for expansion and rehabilitation)	0.9	1.2	1.5	0.6
Gross Operating and Maintenance Costs (fare-revenues not netted out)	1.6	1.8	2.0	0.4
Total Per Year	2.5	3.0	3.5	1.0 **

*Assumes that provincial funding for the Big Move (at the $9 billion level) plus $4 billion in earlier tri-government commitments runs out in 2015 and new sources will be required subsequently to meet capital costs and operating costs net of fare revenues. If the $4 billion provincial funding deferment is not made up before 2015, new funding sources will be required sooner or projects will be deferred.
**Assumes funding for capital and operating costs will continue at 2008/9 levels in constant (2008) dollars. Approximate 2016-33 levels of required new funding sources will need to ramp up also during the 2010-2015 period.
Sources: Metrolinx, Agency of the Government of Ontario. 2008. "The Big Move". Investment Strategy, Chapter 6. Annual statistics from Canadian Urban Transit Association (CUTA) and GO Transit.

These estimates are purposely stated in approximate terms, reflecting uncertainties in projected future costs and revenues. The message is clear, however: stated in constant 2008 dollars, a funding shortfall of $3 billion/year following 2015 for regional transit and an annual funding shortfall of at least $1 billion/year for TTC and other local transit, assuming that existing funding for the latter services persists indefinitely at the 2008-9 level, for a total GTHA transit funding shortfall (capital and operations) of at least $4 billion/year. Stated in current dollars, these estimates will increase year-by-year at the inflation rate. While it is not unreasonable to assume that transit funding by the federal and provincial governments will continue beyond 2015, the level of likely support from senior governments (as discussed in the following section) would still leave a significant funding shortfall in the order of $2 – 3 billion/year. There is a strong need for alternative funding sources.

While not included in Figure 2, the Metrolinx Investment Strategy for the Big Move also requires $5 billion to fund capital improvements for controlled-access expressways. As stated in the Big Move: "They include projects that are in the Ministry of Transportation's five-year capital program for expansion and the 25-year High Occupancy Vehicle (HOV) network proposal as of July 2007, but do not include widening or extension of non-controlled-access local or provincial

roads, or capital improvements beyond the current Ministry of Transportation capital programs". Even if urban highway expansion pressures and automobile traffic growth are moderated by road tolls, continuing growth of truck movements to serve increasing goods movement in an expanding economy requires that the necessary funding be provided, adding to the pressure on provincial and municipal treasuries.

4.2 Alternative Funding Sources and Mechanisms have Differing Benefits and Risks

A fundamental problem in funding most municipal transit systems worldwide is that, under current levels of auto ownership and use, transit fare revenues fall short of covering operating costs, and municipal property tax revenues (at viable tax rates) and development charges fall far short of meeting required capital costs plus operating costs net of fare revenues. Faced with this dilemma, cities and senior governments have adopted a significant variety of alternative funding sources for municipal transit.

Figure 3 summarizes, for each of the twelve selected funding sources, the yearly net revenue range, the assumed rates on which the estimated revenues are based, significant policy advantages, and implementation issues/disadvantages to be considered. Several sources have the significant policy advantage of providing direct pricing incentives to drivers for more sustainable travel choices, as outlined in column 4 of figure 3 and discussed more fully in Sections 4.3 and 5.1. Again, net revenues are stated as a broad range, reflecting projection uncertainties and a possible range of tax/levy rates that could apply. Rates could be time-variable (e.g. changing by time of day or day of week) and/or location-dependent (e.g. for higher parking levies downtown and at other regional attractors), but such details are not included for this initial consideration of basic alternatives. The first eleven revenue sources are listed in declining order of estimated net revenue to the GTHA: large sources could each yield $1–2 billion of additional revenue per year; medium-level sources $200–800 million per year; and smaller sources $40–100 million per year.

Figure 3 includes as its twelfth entry a National Federal-Provincial Transit Strategy. While potentially a large source (although not necessarily all new, additional funding beyond that currently provided by the federal and provincial governments) this source is shown separately at the end of the figure because, unlike the other sources (which would raise funds directly from GTHA residents and be earmarked for GTHA transit/transportation), this strategy would transfer funds from the two senior orders of government (reflecting their superior taxing powers), dedicated on a long-term basis as a reliable source of funding for GTHA transit/transportation.

Reflecting the short lead time to make decisions and implement them (i.e. by 2015), the twelve funding sources were selected based on their potential yield and existing track record (e.g. successful implementation elsewhere, ease of administration, feasibility and proven cost/ reliability of technology). As discussed further in Section 4.3, there are other schemes and technologies which could be considered (e.g. satellite-based vehicle identification for regional or country-wide road pricing or distance-based [VKT] charges) as well as various institutional mechanisms (e.g. Benefit Assessment Districts) or financial arrangements (e.g. Tax-Increment Funding). Those selected for initial presentation in Figure 3 were considered to be most promising for early, productive implementation following public discussion and political decision making. The others can be considered as more detailed studies take place, experience is gained, and their feasibility more fully demonstrated.

As shown, any of the first four sources in Figure 3 are estimated to be capable of yielding $1 – 2 billion/year of additional funding for GTHA transit/transportation. The remaining seven sources range from estimated yields of $400 – 800 million/year to $40 – 100 million/year. These numerical estimates and key policy advantages and implementation issues are presented in summary form as a basis for consideration and discussion by stakeholders and the public. A more detailed description of the mechanics of these tools and how they have been used in other jurisdictions follows the revenue discussion.

Figure 3: Potential Sources for Additional GTHA Transit/Transportation Funding

Source	Net Additional Revenue to GTHA	Basis of Estimate	Policy Advantages	Implementation Issues
1. Road Tolls on GTHA Freeways (400 series high-ways and municipal controlled-access highways)*	$1 – 2 B/year	10 – 20 ¢/km	Relieves congestion hot spots Revenue grows with demand Encourages more use of transit Results in increased traffic speed and road capacity Moderates road expansion spending	Traffic diversion concerns "Double taxation" concerns Much better transit required first Social equity concerns
2. Regional Gas/ Diesel Fuel Tax	$1 – 2 B/year	10 – 20 ¢/litre	Potential to reduce auto use marginally, but not focussing on hot spots Encourages energy-efficient, low emission vehicles, more transit use Easy to administer	Sales "leakage" to surrounding areas Will decline per vehicle-km as fuel-efficiency improves Best introduced when gas prices are low
3. Commercial Parking Levy	$1 – 2 B/year	$1.00 – 2.00/day per space	Reduces auto use to commercial areas Encourages more use of transit and active transportation Administratively straightforward	Employment "leakage" to areas surrounding the GTHA A different version, the Commercial Concentration Tax, was rejected in GTA in early 1990's
4. Regional Sales Tax	$1 – 2 B/year	1 – 2% in addition to the HST	Administratively stable, reliable source	No direct incentive for more sustainable transportation behaviour Sales "leakage" to surrounding areas A hard sell on top of the HST
5. High Occupancy Toll (HOT) Lanes or Express Lanes on GTHA Freeways	$400 –800 M/year for Express Lanes $200 – 400 M/year for HOT Lanes	10 – 20 ¢/km for single-occupant vehicles (HOT Lanes) or for all vehicles (Express Lanes)	Encourages car-pooling Increases person-carrying capacity and average speed on major highways Provides a toll-free alternative in the freeway network	Relatively small revenue versus infrastructure and enforcement costs
6. HST Revenue from Gas/Diesel Sales Tax (Revenue dedicated	$400 – 600 M/year	May 11/10 news report ** of $895 M additional gas tax revenue	Same as above for Regional Gas/Diesel Fuel tax Would be timely if dedicated as of July 1, 2010 or shortly	As above except province-wide application of HST avoids fuel sales "leakage" to areas surrounding the

Source	Net Additional Revenue to GTHA	Basis of Estimate	Policy Advantages	Implementation Issues
partially or fully to GTHA transit)		anticipated from 2010/11 HST	thereafter	GTHA
7. Central Area (C.A.) Congestion Levy on private vehicles entering Planning District 1*** 6:30 am–6:30 pm Monday – Friday	$250 – $500 M/yr	$5 – 10/vehicle entry-charge at cordon	Reduces Central Area congestion Encourages more use of transit and active transportation Improves mobility in Central Area	Potential employment loss from Central Area Congestion/parking pressure in areas surrounding the Central Area Better transit needed first Implementation cost and payment evasion issues
8. Vehicle Registration Fee (Varies with vehicle GHG emission levels)	$200 – 400 M/year	$100 – 200/year per vehicle	Stable, reliable source Encourages low-emission vehicles Easy to administer	Does not moderate amount of use of the vehicle
9. Value Capture Levy (provides revenue from higher property values/taxes in areas served by higher-order transit)	$50 – 100 M/year	N/A	Encourages compact development and increased transit use May reduce land speculation Easy to administer	Uncertainty in estimating increased value Upward pressure on rents May force out small business and low income residents
10. Utility Bill Levy	$50 – 100 M/year	$20 – 40/year per household	Stable, reliable source Easy to administer	No direct incentive for more sustainable driver behaviour
11. Employer Payroll Tax in Areas within walking distance of rapid transit	$40 – $80 M/year	$100 – 200/year per full time employee	Stable, reliable source Partially borne by incoming workers who benefit from improved transit Administratively straightforward	Higher costs, potential loss of jobs in taxation zones Benefits to local employees may not compensate for lower wages.
12. National Federal-Provincial Transit Strategy (Similar to Ontario's former funding formula, but based on a national federal/ provincial agreement	$1 – 2 B/year	25 – 50% of transit capital costs 25 – 50% of net transit operating costs	Administratively straightforward Stable, relatively reliable source Provides GTHA residents with a long-term commitment for reliable funding plus a stable policy framework from the federal and provincial governments	Difficult in context of large federal/provincial deficits Could be turned off, as happened in 1998 in Ontario, although less easily because two senior government levels are committed No direct incentive for more sustainable transportation behaviour

***Area-Wide Road Pricing is a larger scale road pricing option for possible subsequent implementation, as discussed in Section 4.3**

**The Canadian Press. "Ontario NDP says HST will boost gas price". May 10, 2010. CBC News. http://www.cbc.ca/canada/toronto/story/2010/05/10/ontario-hst.html

***Planning district 1 is the Central part of downtown Toronto, Bounded on the west by Bathurst Street, on the North by Dupont Street and Rosedale Valley Road and on the east by the Don Valley Parkway; south of Queen Street and Eastern Avenue it includes the entire waterfront between the west end of the Canadian National Exhibition and Woodbine Avenue including the Toronto Islands.

Source: Estimates by TCSA Working Group, drawing also on other sources.

LARGE REVENUE SOURCES

The first three sources listed in Figure 3 – **1. Road Tolls on GTHA Freeways**; **2. Regional Gas/Diesel Fuel Tax**; **3. Commercial Parking Levy** – all have the advantage of tending to moderate levels of automobile use and resulting road investment requirements while encouraging more use of transit and active transportation and, in the case of a regional gas/diesel tax, encouraging energy-efficient, low-emission vehicles. Each would potentially yield $1–2 billion/year using charge rates not unreasonable in light of international experience; e.g. 10–20 ¢/km Freeway Tolls (less than currently charged in peak periods on Highway 407), 10–20¢/litre Regional Gas/Diesel Fuel Tax (considerably less than the range of price variability over the past year), and a Commercial Parking Levy of $1–2/day per space (considerably less than existing commercial parking rates except in existing "free" parking areas). As shown, however, significant implementation issues would also have to be considered and addressed in designing the funding schemes.

The remaining two large revenue generators – **4. Regional Sales Tax**; **12. National Federal-Provincial Transit Strategy** – would be administratively relatively straightforward and stable sources, but would have no direct impact on encouraging drivers to use the road network more efficiently (thereby relieving congestion "hot spots") or encouraging more use of transit or of energy-efficient, low emission vehicles. An additional sales tax of 1–2% on retail sales in the GTHA would yield $1–2 billion/year, but it would encourage "leakage" of sales to surrounding areas, and would be a hard sell on top of the July 1, 2010 introduction of the HST.

MEDIUM LEVEL REVENUE SOURCES

The fifth source in Figure 3 – **5. High-Occupancy Toll (HOT) Lanes or Express Lanes on GTHA freeways** – is a variation on the first source (1. Tolls on GTHA Freeways) but differs in that tolls are charged on only some lanes of a multiple-lane freeway leaving other lanes toll-free. Based on a toll of 10–20 ¢/km paid by all vehicles using Express Lanes, this source would yield an estimated $400–800 million/year. If the same toll rates were paid by vehicles with only one occupant allowing them to use HOT lanes, the yield would be lower, about $200–400 million/year. In addition to providing substantial new revenue, this source has the advantage (like source 1.) of encouraging car pooling and increasing the person-carrying capacity and speed on major highways for the HOT Lanes or Express Lanes, while (unlike source 1.) providing a toll-free alternative for users of the partly tolled freeway.

The next source in Figure 3 – **6. HST Additional Gas Tax** – is a variation on the **Regional Gas/Diesel Fuel Tax**. While the expected yield of $400 – 600 million/year is less than for the latter, the yield could be respectable, based on a recent news report that, on its introduction on July 1, 2010, the HST may yield additional gas tax revenue of almost $900 million province-wide, perhaps half of that in the GTHA, and its introduction is committed policy. It has an advantage over the Regional Gas/Diesel Fuel Tax in that province-wide application of the HST would avoid fuel sales "leakage" from the GTHA to surrounding areas. In addition, earmarking the gas tax revenues from this source might help address public controversy about the HST since it would be dedicated to transit/transportation, with resulting tangible improvements in municipalities across the province.

The next source listed in Figure 3 – **7. Central Area Congestion Levy** on private vehicles entering between 6:30 am and 6:30 pm Monday to Friday – would yield an estimated $300–600

million/year with a $5–10 vehicle entry charge at the cordon. Advantages include its effects in reducing central area congestion and improving mobility in the cordoned Central Area while encouraging more use of transit and active transportation. Concerns include potential "leakage" of employment and economic activities from the Central Area, traffic congestion and parking pressure in areas immediately surrounding the Central Area, and implementation cost and payment evasion issues. It is, in some respects, a variation on the first scheme listed – a toll on GTA freeways – but with different advantages and disadvantages. While it would ease congestion in the Central Area, it would not address the more serious congestion hot spots on major radial freeways, and particularly around the boundaries of the City of Toronto where serious congestion exists. The next source – **8. Vehicle Registration Fee**, which varies with vehicle greenhouse gas (GHG) emission levels – would yield about $200–400 million/year, at rates of $100–200/year registration fee per vehicle (with the higher rates applying to heavy GHG emitters). It has the policy advantage of encouraging the purchase and use of low emission vehicles. The current provincial registration fee is $74/year; the new fees, while small in relation to annual vehicle ownership and operating costs, would therefore average about double the existing fee, reflecting the external costs (e.g. congestion, pollution, accidents) imposed on society by automobile use in the GTHA.

SMALLER REVENUE SOURCES

The next three sources listed – **9. Value Capture Levy** on the increased value of property served by higher-order transit; **10. Utility Bill Levy; 11. Employer Payroll Tax** – would yield smaller amounts in the range of $50–100 million/year, at rates of $20–40/year per household for the Utility Bill Levy and $100–200/year per full time employee in areas served by major rapid transit stations. All three sources would be administratively straightforward and provide relatively stable, reliable funding. The Value Capture Levy would encourage compact development and, like the Employer Payroll Tax, would support improved transit and greater transit use in the relevant areas, although increased costs for employers could cost potential loss of jobs in taxation zones.

NATIONAL FEDERAL-PROVINCIAL TRANSIT STRATEGY

Readers might well ask: why try to create a long-term senior government transit funding program, given the impact that the lack of consistent, reliable senior government funding has had on the massive GTHA under-investment in transit during the past several decades? The difference is that a **long-term transit funding formula** is proposed with federal/provincial commitment under a **National Federal-Provincial Transit Strategy**, rather than the relatively short term and intermittent funding arrangements which have been brought to bear since Ontario's municipal transit funding formula was discontinued after 25 years, as a cost cutting measure in 1998.

If, as shown in Figure 3, the funding program covers 25–50% of transit capital costs (rather than 75% as under the earlier Ontario formula) and 25–50% of net operating costs (rather than 50% as under the Ontario formula), federal/provincial funding of $1–2 billion/year would be required for GTHA transit from the federal and provincial governments combined. It is true, of course, that even a long-term funding formula can be turned off by a new government, but basing the funding on combined federal-provincial commitments would make it significantly more difficult to

terminate than the Ontario funding formula was in 1998 since two levels of government would have to agree; it is arguably less likely that both would experience extreme policy changes at the same time.

While introducing such a funding formula in the context of large existing federal and provincial budget deficits would require political courage, senior governments could be comforted by the likelihood that the total financial commitment by each government level would not necessarily involve an increase in their current spending levels on GTHA transit/transportation and would be less than the total committed by Ontario alone for the earlier provincial funding formula. As proposed here, more than two-thirds of the outlay would be for transit/transportation capital investments which, as pointed out by the 2009 OECD Territorial Review of Toronto Canada, will yield significant economic, environmental and social benefits for Canada's largest urban region. The big difference from the existing situation would be the long-term, coordinated commitment at each of the federal and provincial levels, a funding formula approach, and a stable policy framework.

POSSIBLE COMBINATIONS

Other potential sources could be considered, but the twelve listed illustrate the range of possibilities along with the likely yield of each in the GTHA at assumed charge rates along with their various strengths and weaknesses. It is not a purpose of this paper to evaluate and recommend preferred new funding sources, but rather to provide information on a representative set, for public consideration and discussion. If the estimated funding shortfall for GTA transit is in the order of $4 billion/year following 2015, it seems clear that more than one of the potential sources will be required – no single source would be sufficient.

In assessing the various sources, readers may wish to consider how they might be combined in order to produce the required total yield and achieve the most desirable policy advantages, while avoiding or addressing some of the more difficult implementation issues. In doing so it may make sense to try for a grouping which includes one source that directly encourages more sustainable transportation behaviour – that is, **Road Tolls**, a **Central Area Congestion Levy**, a **Commercial Parking Levy**, a **Gas Tax,** or an emissions-variable **Vehicle Registration Fee** – with one or more sources for which charges are more widely spread across the population (such as a **Regional Sales Tax** or **Utility Bill Levy**, a **National Federal-Provincial Transit Strategy** and/or a **Value Capture Levy** or **Employer Payroll Tax**). Having two or more sources could also add resilience to help address unforeseeable future conditions and would help communicate the seriousness of the situation.

More detailed evaluation will be required based on the strengths and weaknesses of each source and various potential grouping of sources, including not only factors such as those listed in Figure 3 but also others such as technical feasibility and the implementation track record of each in other jurisdictions. The following section provides an overview of experience elsewhere, to provide additional food for thought.

4.3 How Are Other Areas Paying for Transit/Transportation?

Figure 4 shows the same twelve examples as in Figure 3 of transit/transportation funding sources as they are used by various urban areas in North America and abroad. As noted earlier,

this is an incomplete list, but illustrates that eleven of the twelve funding sources discussed in Section 4.2 are being successfully applied elsewhere. The single exception is use of the HST revenue from gas/diesel sales in Ontario as a dedicated or partially dedicated source for municipal transit. This is an emerging situation, currently unique to Ontario, but the more general use of a Regional Gas/Diesel Tax is, as shown, currently used in a number of Canadian cities; it is also widely used elsewhere, including the United States and Europe. Gas/Diesel taxes are also widely applied by national and provincial/state governments. There has been an increasing trend for senior governments to dedicate some revenues from this source to municipal transit; Canadian examples include major cities in Ontario, Quebec, British Columbia and Alberta.

Figure 4: Examples of Transit Funding Sources Used Elsewhere

1. Road Tolls: New York-New Jersey bridges & tunnels, Paris, Santiago, Melbourne
2. **Regional Gas/Diesel Tax**: Montreal, Vancouver, Edmonton, Calgary, Victoria
3. **Commercial Parking Levy**: Vancouver, Pittsburgh, Chicago, Perth
4. **Regional Sales Tax**: Denver, Seattle, Los Angeles County
5. **HOT Lanes or Express Lanes on Freeways:** California, SR91, San Diego County, Minneapolis-St. Paul
6. **HST Revenue from Gas/Diesel Sales**: Emerging situation currently unique to Ontario
7. **Central Area Congestion Levy:** Singapore, London, Stockholm, Oslo
8. **Vehicle Registration Fee:** Montreal, Quebec City
9. **Value Capture Levy**: Los Angeles, Denver, Miami, Hong Kong
10. **Utility Bill Levy:** Vancouver, Calgary, Austin
11. **Employer Payroll Tax**: Paris, Oregon State
12. **National Federal-Provincial Transit Strategy**: All OECD countries except Canada

There is insufficient space here to describe all these applications in detail, but highlights for some are provided below.

ROAD PRICING

Three of the revenue sources listed in Figure 4 – **1. Road Tolls; 5. HOT Lanes or Express Lanes on Freeways; 7. Central Area Congestion Levy** – are forms of road pricing with differing characteristics. **Road tolls** are levied for the use of specific roads (sometimes with variable rates depending on the time of day or day of the week) and often applied preferentially to freeway networks, to help relieve peak period congestion and improve the speed and reliability of traffic flow, while moderating road expansion spending and encouraging more use of transit. In contrast, a **Congestion Levy** applies to all roads in a specified area; vehicles are charged on crossing the cordon to enter the area, with the intent of reducing congestion and improving mobility in the congestion zone and encouraging more use of transit and active transportation to, from and within the zone.

As shown in Figure 4 these types of user fees are widely used – many other examples exist in the United States, Spain, Mexico, South America and Asia – and increasingly employed as basic funding sources for urban, regional and national transportation. Figure 5 presents an overview of eight road pricing applications, of which four (in Toronto, Melbourne, Santiago, Germany) are **Road Tolls** and the other four (Singapore, Oslo, London, Stockholm) are

Congestion Pricing. It provides more information on timing, objectives, types of charges and technology. Some countries such as the United Kingdom and the Netherlands – have studied, but not implemented, the use of a global positioning system (GPS) as the basis for country-wide road pricing.

Figure 5: Overview of Selected Road Pricing Applications

Location	Year of Introduction	Primary Objective	Secondary Objective	Type	Charges	Technology
Singapore	1975 (Original)	Reduce congestion in CBD	Encourage use of transit	Cordon based CBD access plus expressways and outer ring roads	**Variable:** -fee periodically changed depending on travel speeds -by vehicle type	-OBU with inserted debit card -DSRC with gantries -ANPR for enforcement
www.ita.gov.sg						
Oslo, Norway	1990	Revenue – dedicated for transport investment in Oslo		Cordon based central area access	Flat fee depending on vehicle weight	-In vehicle transponders -Toll booths for manual payment -ANPR for enforcement
Toronto, Canada 407 ETR	1997	Provide additional expressway system capacity	Revenue generation for expanding and extending the highway	Toll "closed" facility- per kilometre (sic) toll fee	**Variable by:** -Time of the day -Vehicle type	-In vehicle transponder using DSRC -ANPR for payment without transponder -Gantries at entry and exit ramps.
www.407etr.com						
Melbourne, Australia	2000	Reduce congestion in CBD	Improve access for freight associated with port	-Toll facility -Two routes: City link (22 km) East link (39 km)	Fee for toll zones	-In vehicle transponder using DSRC -ANPR for enforcement
www.vicroads.vic.gov.au						
London, UK	2003	Reduce Congestion in central area	-Encourage use of transit -Revenue dedicated for transport investment	Cordon based central area access	Pre- or post-paid flat fee	ANPR (for charging and enforcement)
www.cclondon.com						
Santiago, Chile	2004	Reduce air pollution by alleviating severe queuing/ congestion	Provide new infrastructure through private concessions	Toiled urban network	Variable by time of day	-In vehicle transponder using DSRC -ANPR for enforcement
Germany	2005	Revenue for maintenance and road system improvements	Allocate costs to HGV's which cause disproportion-ate share of road wear	HGV distance charges on national autobahn system	Variable charges for HGV> 12 tonnes based on: - class of vehicle - number of axles	-OBU – GPS for charging -ANPR for enforcement
www.toll-collect.de www.bmvbs.defen						
Stockholm, Sweden	2007	Reduce congestion	-Improve environment -Encourage transit use Revenue dedicated for transport investment	Cordon based central area access	Variable by time of day. Vehicle owners invoiced monthly.	ANPR (for charging)
www.vv.se/templates/page3_1715.aspx						
ANPR=Automatic Number Plate Reading; CBD=Central Business District; DSRC=Dedicated Short Range Communication; GPS=Global Positioning System; HGV=Heavy Goods Vehicle; OBU=On-board unit						

Source: Transportation Association of Canada. 2008. "Road Pricing in an Urban Context". 2008. www.tac-atc.ca

High Occupancy Toll (HOT) Lanes are a specific type of road tolls in which lanes are designated for use by multiple-occupant vehicles free of charge but with tolls required from single-occupant or (in some cases) double-occupant vehicles; this has policy objectives similar to those of road tolls as above, with the important specific objective of encouraging car pooling and thereby increasing the person-carrying capacity of the tolled lanes.

A variation on the **HOT Lane** concept is **Express Toll Lanes**, in which all vehicles are tolled regardless of the number of occupants; this has the advantage of increased revenues and reduced enforcement costs, while car pools are still encouraged because the toll can be divided among vehicle occupants. Both **HOT Lanes** and **Express Toll Lanes** tend to be applied to only some lanes of a freeway, leaving the others free of charge, another advantage of this source since it leaves drivers with a toll-free option on the freeway system. As noted in Figure 3, the revenue from Express Toll Lanes would be higher than from HOT Lanes, since all vehicles using the lanes would pay the toll.

A prominent example of **HOT Lanes** is on State Route 91 in Orange County California. Tolls are collected electronically as vehicles move under an overhead gantry; toll rates, as displayed on the gantries, vary continuously reflecting in real-time the traffic density on the variably-priced lanes. As shown in Figure 6, each such lane carries twice as many vehicles per lane as the free lanes during the hour with heaviest traffic, at speeds which are three or four times the speed on the free lanes, giving drivers a strong incentive to avoid congestion on the free lanes.

A **tax on Vehicle Kilometres Travelled (VKT)** is similar to road tolls in that vehicles are charged for each kilometre travelled. Measurement of VKT may be through standard road tolling technology, a tamper-proof odometer or, as used for truck traffic in Germany and Slovakia and a pilot project in Oregon, using GPS technology. In some cases, as in the Netherlands and Germany, the tax rate will also vary by the height and weight of the vehicle, to place a higher charge on heavy road users.

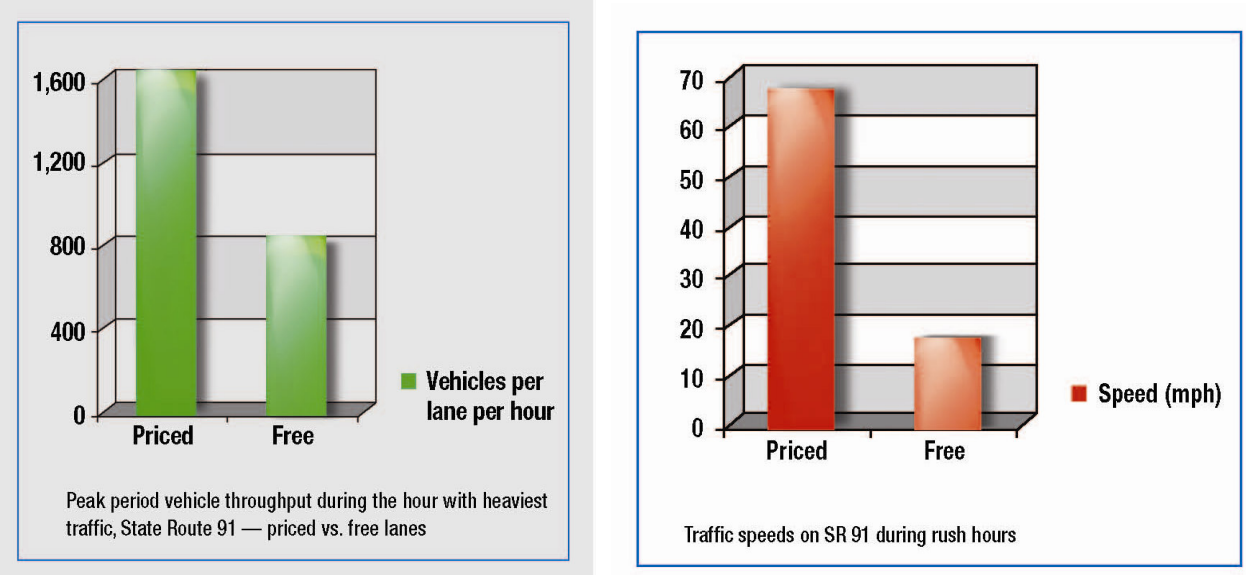
Satellite (GPS-based) technology makes possible **Area-Wide Road Pricing**, which could apply to all vehicles using the road system in a designated area. Such a system could be applied for all roads and vehicles in the GTHA or even, at a wider scale, in all of Southern Ontario. Its comprehensive nature would be both a strength and a weakness in the present context. Strengths include the fact that traffic diversion from major highways to more local roads (as in option 1 of Figure 3) would not be an issue, and the system could be a powerful and flexible tool for traffic demand management (TDM) which would greatly help achieve the objectives of The Big Move to achieve more sustainable transportation in the GTHA. A weakness, given the urgency of deciding on and implementing alternative funding sources for GTHA transit/ transportation, is that installing and enforcing operational GPS- based identifying units and billing arrangements for all vehicles in the GTHA would be a very major undertaking; this, and likely public concerns regarding privacy/intrusion issues, would tend to increase the normal risks of time/cost over-runs facing all such projects. For the latter reasons, this funding source was not included in Figure 3 which focuses on alternatives that have an existing track record and, as a result, likely shorter times for decision-making and implementation.

That said, **Area-Wide Road Pricing** is worthy of public discussion as a longer term funding source. This could include discussion of a strategy to select and implement more immediate funding sources which would be compatible with possible later expansion to become full scale **Area-Wide Road Pricing**. For example, GPS-based technology could be used initially for **Road Tolls on GTHA Freeways** or for **VKT Distance-Based Charges for Truck Traffic;** this would greatly reduce the number of vehicles involved initially, allowing earlier implementation, and the system could later be scaled up to include all roads and vehicles.

These, and other positive performance impacts on transportation networks as reported for all

three types of road pricing, emphasize that, if such a pricing system is properly designed and implemented, the benefits of road pricing can be well worth the price paid by road users. This is true for goods movements as well as for personal travel, with positive impacts on the economy and the quality of life for those living and travelling in the GTHA.

Figure 6: Performance Benefits of Express Lanes on California S.R. 91



Source: Federal Highway Administration. December 2006. "Congestion Pricing, A Primer".

GAS/DIESEL FUEL TAX

This is the second option listed in Figure 4; as noted, Option 6, **HST Revenue from Gas/Diesel Sales Tax**, is a special case of dedicating such tax revenues to transit, which could potentially be considered in the context of the July 1, 2010 introduction of the HST in Ontario. A carbon tax, designed with the broader intent of reducing carbon dioxide emissions, would by definition add a surcharge to the price of gas/diesel fuels, but is currently subject to political controversy at senior government levels in Canada. For this reason, and given the urgency of financial requirements for transit in the GTHA, it is not included here as an example.

In Canada, the federal government allocates 5 cents/litre of its gas tax revenue in support of sustainable community infrastructure, while Ontario allocates 2 cents per litre of its gas tax revenue to funding municipal transit. Elsewhere in Canada, TransLink, with major transit/transportation responsibilities in Greater Vancouver, receives 15 cents/litre from British Columbia gas tax revenues. Edmonton and Calgary receive 5 cents/litre from Alberta gas tax revenues for municipal transit/transportation purposes, and the agence métropolitain de transport in Montreal receives 3 cents/litre from Quebec gas tax revenues.

The United States federal government has dedicated revenues from its gas tax for more than five decades, initially primarily to support the Interstate Highway System, through the federal Highway Trust Fund and more recently including allocations to help fund municipal transit. Gas taxes collected by US state governments are also usually used to help meet transportation infrastructure requirements.

As noted earlier in Figure 3, if significant gains in fuel efficiency are achieved, as expected, over the coming two or three decades, and if higher prices depress gas/diesel fuel sales, gas tax revenues can be expected to cease growing in lock step with vehicle kilometres of travel. The long-term future of this revenue source is therefore less robust than that of road pricing or a levy based on VKT.

COMMERCIAL PARKING LEVY

As shown in Figure 3, this is potentially a large revenue source if applied in the GTHA at the levels indicated.

TransLink, serving Greater Vancouver, charges a 7% sales tax on commercial off-street parking, applied on top of the 5% GST (soon to be 12% HST). This is expected to generate $45 million/year. Phased increases of 7% are planned, rising to 14% and then to 21%. The tax is collected from parking lot owners/operators with the expectation that it is being passed on to those paying for off-street parking. An earlier scheme, based on collecting $25/year per space from commercial parking lot owners/operators, was discontinued at the behest of the provincial government.

Another significant example is in Pittsburgh, Pennsylvania, which imposes a 37.5% parking surcharge, collected by operators to remit to the city. The rate was reduced from 50% in 2006, but most lot operators did not reduce their rates by a similar amount. In Chicago, businesses operating parking lots collect a 33% tax from customers to remit to the city.

The Toronto Commercial Concentration Tax (CCT), repealed by the Province after three years in the early 1990s, was a surcharge on large commercial properties (not just parking facilities) to fund transit and road programs in Ontario. It was withdrawn when, in response, suburban municipal parking lots and transit park-and-ride lots abolished fees to avoid paying the tax. A commercial parking levy would be less broad than the CCT – focussed only on parking facilities – and could (as described in Figure 3) be a flat rate levy rather than a percentage of existing fees.

REGIONAL SALES TAX

This would also be a potentially large revenue earner in the GTHA, as noted in Figure 3.

This approach is widely used by US state governments with some of the revenue often allocated to municipal governments for transportation infrastructure. As of 2004, local transportation sales taxes were imposed at the regional/municipal level within 27 states. In California, 17 regional transportation authorities and counties levied a 0.5% transportation sales tax, estimated to yield about $3 billion per year.

NATIONAL FEDERAL-PROVINCIAL TRANSIT STRATEGY

Examples of national transit strategies, involving long-term financial commitments to fund municipal transit systems, are the rule rather than the exception in OECD countries. Canada is the exception. As noted above, the United States federal funding program, based on funding from the Highway Trust Fund, includes committed funding for municipal transit on a per capita basis, providing stable, predictable, long-term funding.

More detailed study and assessment of other national transit strategies would be desirable input to designing such a strategy here. As noted earlier in Section 4.2, a Canadian national strategy would have the benefit of enshrining long-term commitments at both the federal and provincial levels and would do so more equitably, as it would be based on a funding allocation formula, such as regional population and/or regional transit ridership, possibly involving a more detailed formula such as shown in Figure 3; these characteristics, in particular the involvement of both senior government levels, would increase long-term reliability by making it more difficult for either level to withdraw unilaterally.

CAPTURING TRANSIT BENEFITS

Two of the revenue sources listed in Figure 4 – **8. Value Capture Levy; 12. Employer Payroll Tax** – are designed to produce funding from the increased property values in areas served by higher-order transit facilities. While not as large as the above sources in terms of revenue generation, either of these could be a relatively stable and administratively straightforward revenue source. In addition, the **Value Capture Levy** would encourage compact development and increased transit use, and would be an incentive to reduce land speculation.

The Mass Transit Railway Corporation (MTR) in Hong Kong owes its status as one of the few municipal transit systems which is financially viable without subsidy to the fact that it has development rights for land above and adjacent to stations. In trading development rights to such land with developers, at low values before the new transit is introduced versus high values after its introduction, the MTR earns net revenues reflecting the increased value due to transit expansion.

In the United States, **Benefit Assessment Districts** have been created in a number of urban areas (e.g. Denver, Los Angeles, Miami) to capture property value increases through taxation and dedicate these to funding the transit which created the value increase. **Tax Increment Financing (TIF)** is a related approach to harness anticipated increased property tax revenues from transit and related improvements for current financing to help fund the improvements. Decisions to apply the TIF approach are made locally and TIF fairly common practice in the United States, but less so in Canada.

The **Employer Payroll Tax** would be a major revenue source if applied across the GTHA; the more modest example given in Figure 3 would apply it to a number of areas served by higher-order transit now and in the future as the Big Move is implemented, with full-time employment currently totalling about 400,000 in those areas.

The most prominent example of an employer payroll tax elsewhere is in Paris, France, where the transport payment was introduced in 1971 for the Ile-de-France region, aimed at making employers cover the cost of fare reductions for their employees on their transit commuting trips. In 1973 funds were also allowed to be used for transit service improvements and in 1982 their use was extended to all public transportation. At the same time, the approach was extended geographically to include major urban areas across France. The tax is collected from companies employing nine or more people as a salary surcharge in the range 1.4 – 2.6% on gross salary. While it has drawbacks such as those shown in Figure 3, its ease of administration, reliability, and significant magnitude if applied across an entire urban region have contributed to its success in Paris and other urban areas in France.

In the United States, the State of Oregon levies a payroll tax in the municipalities of Eugene (Lane Transit District) and Portland (Tri-Met Transit District), dedicating the revenues for transit. The tax rates are about 0.7%, levied on most employers who pay wages in the relevant transit districts.

VEHICLE REGISTRATION FEE

Provincial and state Vehicle Registration Fees are relatively common throughout North America, including in the Province of Ontario. The scheme listed in Figure 2 would differ from many of these by having a significant range of variability with a higher fee applying for large fuel-inefficient vehicles and a significantly smaller fee for smaller, fuel-efficient vehicles.

UTILITY BILL LEVY

As shown in Figure 3, this would be a relatively small revenue source in the GTHA at the illustrated rates per household. Revenues from the additional levy added to the utility bill are dedicated to transit/transportation.

The most prominent example in Canada is Greater Vancouver, where TransLink levies $1.90 per month on each BC Hydro account in the service region, generating approximately $18 million/year. The levy is collected by BC Hydro on behalf of TransLink.

Similar approaches exist in Austin, Texas and Calgary, Alberta.

WHO PAYS? WHO BENEFITS?

As noted in Figure 3, some of the 12 funding sources are based on user charges that provide pricing incentives to travellers to use the road system in a manner that reduces congestion (e.g. avoiding congested roads and peak times, car pooling, using transit) and leads to higher speeds and vehicle throughput on the tolled roads or lanes (see Figure 6). The three sources based on **Road Pricing (i.e., 1. Road Tools on GTHA Freeways; 5. High Occupancy Toll (HOT) Lanes or Express Lanes on GTHA Freeways; 7. Central Area Congestion Levy)** have these beneficial effects, and it is clear who pays (the drivers using tolled facilities/areas) and who benefits (again, the same drivers, who arrive sooner). In addition everyone living in and around the GTHA benefits, because a greatly improved transit/transportation system provides economic gains (cheaper goods, more jobs, more productive workers lower highway costs, a cleaner, more benign environment (less automotive pollution, lower contribution to global warming), and a higher quality of life (more time spent with the family, fewer accidents, healthier lifestyles).

Other sources based on user fees (**i.e. 2. Regional Gas/Diesel Fuel Tax; 3. Commercial Parking Levy; 6. HST Revenue from Gas/Diesel Sales Tax; 8. Vehicle Registration Fee)** provide drivers with a more general incentive to use their cars less, rely more on using transit and/or active transportation and, for the Vehicle Registration Fee, to purchase and use a more fuel-efficient, less polluting vehicle. As is the case for the road pricing sources, the vehicle owners and drivers pay for these sources, they also gain from a healthier lifestyle (more walking), a cleaner environment and having an improved transit/transportation system which offers more choices of travel modes, but not necessarily from experiencing lower travel times (although many travellers who live/work close to rapid transit lines will experience this benefit also). Everyone living in and around the GTHA will experience the same general benefits as listed above for road pricing.

The remaining five sources **(4. Regional Sales Tax; 9. Value Capture Levy; 10. Utility Bill Levy; 11. Employer Payroll Tax; 12. National Federal-Provincial Transit Strategy)** are paid for either by the public at large (sources 4., 10., 12.) or by those living/working in areas benefiting from improved transit service (sources 9., 11.). The latter group will benefit from the improved transit services in their area, while everyone living in and around the GTHA will experience the same benefits as identified above for the other seven sources.

Arguably, while drivers who drive extensively in the tolled highway system or central area will pay more than others, they also are the direct beneficiaries of higher road speeds and capacities, in addition to the more general societal benefits experienced by all.

In this context it is worth addressing the argument sometimes used against road pricing which states: "I have already paid for this road through my taxes why should I pay again?" There are at least two answers to this: 1) roads are not free – there are ongoing operations and maintenance costs and major rehabilitation costs every 20 years or so to renew them; and 2) drivers impose other costs on society (e.g. health costs from accidents and pollution, economic costs from congestion). A case can be made that both sets of costs should be borne, at least in part, through direct payments by the drivers who create them as they use the road system, and that the funds generated should be earmarked primarily to build a greatly improved transit/transportation system that will encourage the use of more sustainable modes to the benefit of all.

Considerations regarding payers, beneficiaries, and related factors as discussed above can and should be discussed during the consultation leading to decisions on alternative funding sources. A number of evaluation criteria to help structure these discussions are summarized in Section 6 at the conclusion of this paper.

SUMMARY: HARNESSING THE PUBLIC AND PRIVATE SECTORS

Experience elsewhere regarding the types of revenue sources described in this section illustrates that they are widely and successfully employed in many urban areas worldwide. Municipalities in the GTHA have relatively limited experience with such revenue sources, the most notable being tolls on Highway 407, limited allocations of gas tax revenues from the federal and provincial governments, and a vehicle registration fee.

The field is wide open to consider other funding sources to meet the looming transit/ transportation funding shortfalls described in Section 2. The dependence of Canadian municipalities on property tax revenues (41% in the City of Toronto, 56% in the Greater Toronto Area) was the highest among OECD countries in 2006. The recently passed City of Toronto Act gives the City limited additional taxing powers but excludes major sources such as income tax and sales tax. Examples of the new powers include road pricing, parking surcharges and increased authority to establish design guidelines and set up tax increment financing zones; clearly there is an urgent need to put in place alternative funding sources, potentially drawing on several of the alternative funding sources outlined above.

As mentioned in Section 2.4, the reliable, long-term revenue streams from such funding sources will make it possible to issue bonds for the up-front investment capital needed to implement the Big Move, using the revenue streams to make interest payments and repay the borrowed capital over the lifetime of the new rapid transit facilities. Such debt financing not only expedites the

construction schedule but also enables the private sector to participate – along with the public sector – in raising capital. This, in turn, makes it possible to spread the financing risk between the public and private sectors and harness more fully the productive capability of the latter through public/private partnerships (PPP) and alternative funding and procurement (AFP) arrangements. Experience elsewhere (e.g. France, Spain) and in the GTHA (e.g. Highway 407) has demonstrated that, if appropriately structured and managed, such arrangements can draw on the strengths of both sectors to expedite urgently needed transit/transportation improvements and produce high quality results, on time and on budget.

Metrolinx and Infrastructure Ontario have emphasized their commitment to using best business practices, investment decision-making processes, and performance-based funding terms and conditions for every dollar spent on transit infrastructure and operations.

5. MEASURING OPINIONS: KEY QUESTIONS

5.1 What are the Preferred Funding Sources and Mechanisms for the Big Move?

Other orders of government are providing partial funding for the Big Move as already noted in this document (and these funds, of course, themselves originate from taxpayers through the regular forms of taxation such as income tax on both people and business). Municipalities have also received new transfers from other orders of governments in recent years such as the gas tax transfer to municipalities from both the federal government and the government of Ontario, and the federal GST rebate.

There is clearly a need for further revenue stream diversification to fill the funding gap if the Big Move is to be put in place. Twelve potential options have been put forward for consideration in section 4 of this paper.

As we look toward choosing preferred funding options to ensure that a comprehensive regional transportation plan for the 21st century is put in place, any new funding instrument will need to meet two key tests in order to have a chance at viability:

1. New funding instruments must be fair, effective, efficient, transparent and accountable, and seen to be so.

2. New funding instruments, or at least some of them, need to do more than simply provide the quantum of funding required for the Big Move; they need to also help to moderate increasing congestion, and possibly achieve stable or reduced congestion levels in some corridors.

Passing these two potential tests will help to ensure the long-term acceptability of the selected instruments by proving to the paying public that the value proposition they have been promised by investing in the Big Move is being attained. That promise of the value proposition of the Big Move includes[22]:

[22] Metrolinx, Agency of Government of Ontario. November 2008. "The Big Move". http://www.metrolinx.com/Docs/big_move/TheBigMove_020109.pdf

- increased access to a transport system that is affordable, effective, integrated and multi-modal;

- a seamless and coordinated balance of transportation choices, including transit, walking and cycling;

- the easing of congestion and commute times; and

- reduction in transportation-related emissions of smog precursors and greenhouse gases.

Though it may be possible to reach the required revenue levels from implementing just one or perhaps two of the new tools, a broader approach should be applied. The optimal mix of instruments will have the best chance of not only providing the required quantum of revenue on a net basis but also having a measurable effect on assisting decongestion, over and above that provided by the building of new transit infrastructure alone.

A separate strategic choice is whether to implement one new instrument at a time or aim to implement a comprehensive basket of new tools simultaneously for maximum impact. The urgent need for greatly improved transit and the looming risks of near-term delays suggest that the latter course is needed. This must be balanced, however, against the need for a publicly acceptable program that demonstrates the real benefits of better infrastructure, appropriately priced, for individual travellers and society at large.

5.2 What Major Benefits Do People Want from Transportation and Will They Pay for Them?

The trajectory of public support in other jurisdictions that have implemented versions of the potential sources of revenues under discussion is worth examining.

"*The Move Ahead: Funding The Big Move*"[23], released in May 2010 by the Toronto Board of Trade makes the clear point that, in general, the public has been receptive to new revenue tools, particularly when there has been a clear link between the money raised through the revenue tool and improved mobility, quality of life and new infrastructure provision.

In 2008 polling of GTHA residents, 74% were more supportive of any new levies, fares or tax increases if there was a 100% guarantee that they would be spent only on transportation improvements in the respondent's region. Additionally, two-thirds or more preferred a mix of revenue-raising tools – over a single method – to improve the transportation system (72%) or reduce the number of cars on the road (66%)[24].

In the 2008 US election, 32 referendums across the country asked voters to approve various revenue tools to enable new transit construction. Three-quarters of these measures were approved, often receiving over two-thirds of the voters' support. Significantly, 67% of voters in

[23] Toronto Board of Trade. May 19, 2010. "The Move Ahead: Funding 'The Big Move".
http://www.bot.com/AM/Template.cfm?Section=Growing_the_Economy&Template=/CM/ContentDisplay.cfm&ContentID=4702.
[24] Pollara. August 2008. Research study undertaken for Metrolinx during development of The Big Move.

Los Angeles County approved a sales tax increase that will go toward mass transit expansion, including subway construction. Similarly, after experiencing the improved effects on their mobility, voters in Stockholm voted overwhelmingly to keep a congestion pricing scheme in place following a trial period in 2006[25].

Ken Livingstone, the mayor who implemented the congestion charge in London after being elected in 2000, was re-elected in 2004. While a new mayor subsequently cancelled expansion of the tolled zone, the success of the congestion charge in reducing congestion and reducing travel times added to its popularity and public acceptance of an increased cordon toll, post-implementation.

The clearest message about public attitudes regarding new strategies such as road pricing is that public acceptance is only possible if there is recognition of the need for new investment in the first place, a sense of urgency for that investment, and a clear explanation of the benefits that it will bring, particularly for transit and transportation. This requires effective public engagement. And clear communication about the benefits of using new revenue streams for investments in transportation and public transport. In the UK, for example, support for road pricing almost doubles (from 33% to 61%) if the revenues are used for public transport[26]. In addition, public acceptance of new road pricing instruments often increases once they have been implemented, relative to public opinion in the abstract prior to implementation.

5.3 How Can Effective Public Engagement Be Achieved?

Metrolinx held open houses and public meetings across the region[27] as well as many meetings with and discussions with stakeholder groups as the Big Move was put together. But more has to be done.

Public information around planning and transportation issues has been deemed insufficient by some observers, and civic engagement efforts have been seen as inadequate. The local governments in the GTHA have not always been up to the task of engaging residents in a constructive and open dialogue about the options for progress, either at the neighbourhood, city-wide or regional level. New approaches for public information and community engagement require consideration to move to a more inclusive, creative, and productive process with stakeholders.

There are ways to improve the public engagement process. One approach would be for Metrolinx to undertake a coordinated public information campaign around transit issues, which may include working with schools to develop a curricular unit, working with BIAs to develop and disseminate information targeted at local businesses, and using new media, gaming, and other online forums to allow users to explore the relevant issues and “play with” some of the factors involved in making decisions respecting transit. Translators and translated materials could be considered in areas with a heavy concentration of people whose first language is not English to ensure information is in the dominant language of the community.

[25] Toronto Board of Trade. May 19, 2010. “The Move Ahead: Funding ‘The Big Move”. Page 7. http://www.bot.com/AM/Template.cfm?Section=Growing_the_Economy&Template=/CM/ContentDisplay.cfm&ContentID=4702.
[26] Ipsos-MORI. October 22, 2007. “Support For Road Pricing If Revenues Used For Public Transport”. http://www.ipsos-mori.com/researchpublications/researcharchive/poll.aspx?oItemId=234
[27] Metrolinx, Agency of Government of Ontario. November 2008. “The Big Move”. http://www.metrolinx.com/Docs/big_move/TheBigMove_020109.pdf

Local governments and infrastructure authorities would ideally strive to present and explain issues to the public in a simple, clearer, more informal way. Documents written in highly formal or legalistic language are off-putting and contribute to a sense of helplessness and disconnection. Similarly, breaking down plans into visuals that situate the project into the local context lets people understand how a project will affect them directly. There are sophisticated software tools today, from Google Earth to 3D imaging, which make this easily achievable. This is particularly important when dealing with either local or city-wide or regional issues that propose dramatic changes to the urban form.

The public acceptance that can be produced from real public engagement on a complex issue such as a regional transportation plan and its funding can help to open up the policy space that allows elected officials and decision-makers to make informed decisions while knowing they will not sacrifice their capacity to be elected.

6. NEXT STEPS

As noted earlier, the Alliance has prepared this paper to provide information on the accelerating growth of GTHA traffic congestion, the urgent need to implement Metrolinx's Regional Transportation Plan and major benefits from doing so, the substantial funding shortfalls threatening plan implementation, and alternative funding sources which could be considered to finance the plan and related improvements. Next steps will focus on wide public dissemination of this information and discussion of the pros and cons of the alternatives, to reach informed decisions on an investment strategy for GTHA's future transit/transportation system.

Initially, the paper will feed the Alliance's Roundtable meeting, scheduled for July 14 and involving some 100 members of the public and stakeholder groups. During the following months it will provide input to further study and discussions leading to the Alliance's Summit being held February 10-11, 2011.

It will be important, during this process, to identify and apply an agreed set of evaluation criteria for assessing and comparing the alternative funding sources. Referring back to Figure 3, these criteria could be selected from some or all of the following:

- Net additional revenue generated;
- Reasonableness of charges in light of international experience;
- Behavioural impacts to reduce congestion through peak-avoidance, car pooling, more use of transit and active transportation;
- Other public policy benefits such as encouraging transit-supportive, compact, mixed-use communities, purchase and use of fuel-efficient, low-emission vehicles;
- Stability and reliability of the revenue source;
- Extent to which revenue will grow with the economy and with traffic demand levels;

- Ease of administration and ability to provide a transparent mechanism to ensure the funds are efficiently directed to improve GTHA transit/transportation;

- Technical feasibility, reliability and costs;

- Equity and fairness: minimum negative impacts on specific social groups or economic sectors and reasonable balancing of benefits versus costs to affected groups; and

- Level of success in applications elsewhere.

Roundtable and Summit participants will be encouraged to consider these and other potential criteria as they compare and discuss the various funding sources, and the Alliance may prepare additional study material to this end. The objective is to help facilitate informed decisions by the public and its political leaders – decisions that will determine the quality of the GTHA's future transportation, prosperity and liveability for decades to come.