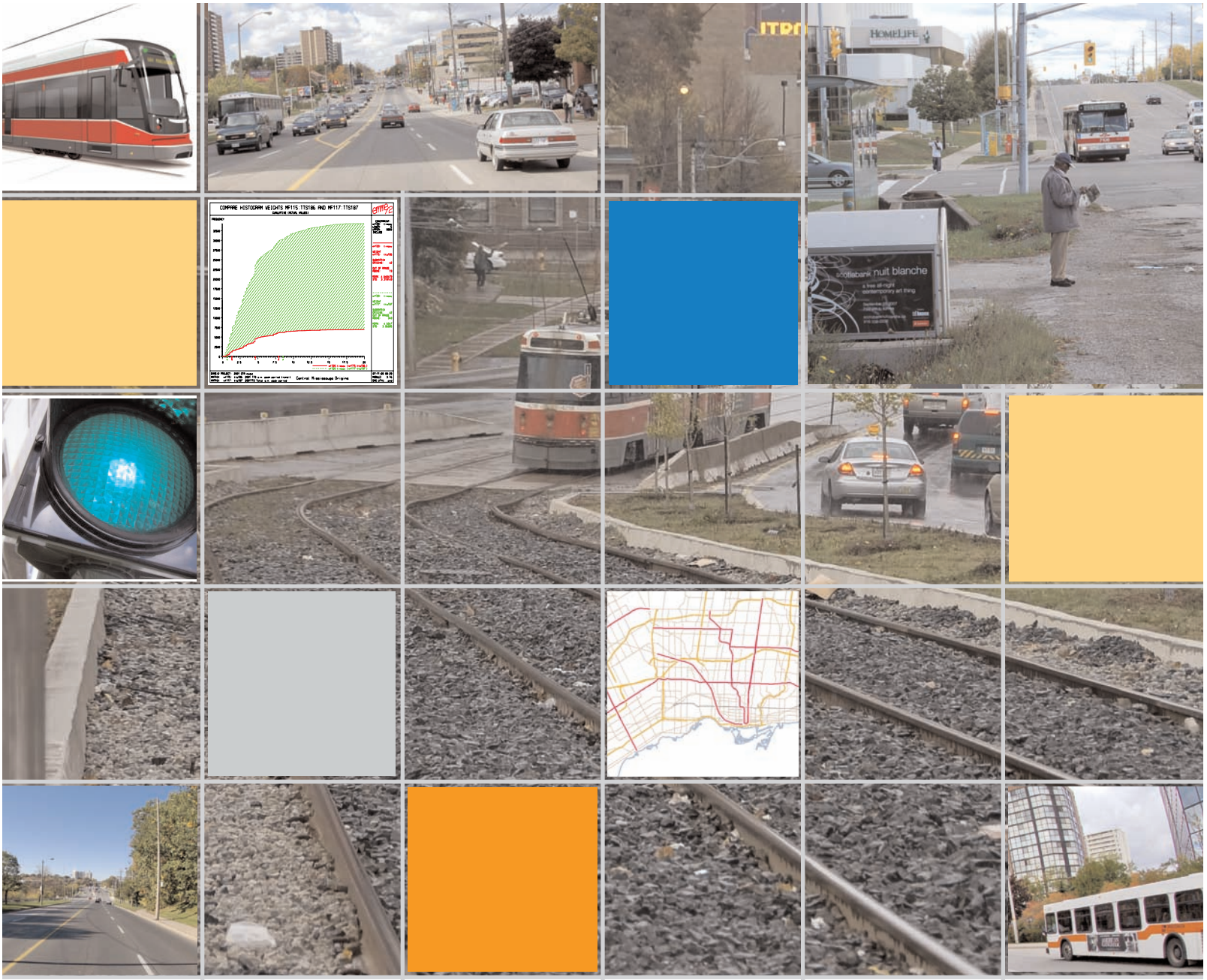

transportation
OPPORTUNITIES
IN THE GREATER TORONTO AREA
BUILDING ON TORONTO TRANSIT CITY
AND MOVE ONTARIO 2020

The Residential and Civil Construction Alliance of Ontario (RCCAO) is an alliance composed of management and labour groups that represent all facets of the construction industry. Its stakeholders stem from residential and civil sectors of the construction industry, creating a unified voice. The RCCAO's goal is to work in cooperation with governments and related stakeholders to offer realistic solutions to a variety of challenges facing the construction industry.

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RESIDENTIAL AND CIVIL CONSTRUCTION ALLIANCE OF ONTARIO
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Constructing Ontario's Future

INFRASTRUCTURE INVESTMENT COALITION

transportation OPPORTUNITIES IN THE GREATER TORONTO AREA

BUILDING ON TORONTO TRANSIT CITY AND MOVEONTARIO 2020

AN INDEPENDENT STUDY FUNDED BY

THE RESIDENTIAL AND CIVIL CONSTRUCTION ALLIANCE OF ONTARIO

RICHARD M. SOBERMAN

TRIMAP COMMUNICATIONS INC.

JANUARY 2008

abstract

2007 was a banner year for transportation announcements including mobilization of a new regional transportation authority (*Metrolinx*), a federal/provincial agreement to fund a number of transit initiatives in Peel, York, Toronto, and Durham, seven new LRT routes as part of *Toronto Transit City*, and two thirds of the funding for 52 transit projects under *MoveOntario 2020*.

With respect to *Toronto Transit City*, the study emphasizes that implementing true LRT service on existing streets requires a fundamental policy decision on the part of municipal officials to either reduce road capacity for automotive traffic and parking or to widen roads. *MoveOntario 2020* is one of the bolder provincial government announcements made in years inasmuch as $11.5 billion in transit funding was promised over the next 12 years, thus removing much of the uncertainty typically associated with transit planning.

GO Transit service accounts for 28 of the 52 proposed projects in *MoveOntario 2020*, including new commuter rail service on Canadian Pacific's North Toronto Subdivision. Because this mainline is an intensively used freight route, the study suggests that onerous, time-consuming, and costly negotiations with the railway's owners would be required to implement these new services.

Building on *MoveOntario 2020* and *Toronto Transit City*, a network of regionally significant projects is suggested including continuous LRT (or other) service in the Sheppard and Eglinton corridors, integration of BRT and LRT projects in Brampton and Mississauga, a northern extension of the Yonge subway, protection of a bus only right-of-way in the Finch Hydro corridor, and relocation of the existing inter-city bus terminal to better connect with Union Station. Modernization of the Yonge train control system, long overdue even without a subway extension, is also recommended.

Specific actions are suggested regarding necessary engineering studies, as well as new approaches to funding long-term transit infrastructure. On a 'go forward' basis, the main actions recommended are:

- begin two major engineering studies related to the Sheppard and Eglinton LRT corridors to validate proposed concepts,
- consider alternative technologies for the Hurontario LRT that maximize potential integration with the Brampton Acceleride and Mississauga Transitway projects,
- approve the terms of reference for the environmental assessment of the proposed airport rapid transit service,

- enact provincial and federal government legislation to guarantee long-term predictable and indexed funding that can be used as revenue covenants to secure commercial debt instruments to accelerate construction of transit infrastructure,
- protect a sufficient right-of-way within the Finch hydro corridor to permit the operation of future bus services on an exclusive busway, and
- take the first steps to assess road pricing as a means of financing GTA transportation requirements in an equitable manner that does not contradict regional goals for intensification and redevelopment.

summary

Although a 2006 study commissioned by the RCCAO concluded that there was no comprehensive transportation plan for the entire GTA, 2007 was a banner year for transportation announcements including mobilization of a new regional transportation authority (*Metrolinx*). Chapter 1 summarizes some of the more significant events and their implications for transportation planning in the GTA.

In March 2007, the Prime Minister announced that the federal government would provide funding for the Mississauga Transitway, Brampton Acceleride, and York Region VIVA bus rapid transit projects, as well as extension of the Spadina subway into York Region and rapid transit for Durham.

Subsequently, the *Toronto Transit City* and *MoveOntario 2020* announcements both promised order of magnitude improvements in transit throughout the GTA.

These plans are premised on the goal of reducing congestion on existing roads and accommodating significant increases in travel demand throughout the region by public transportation, almost to the exclusion of any major initiatives regarding expansion of the road system. They are silent on such road issues as the Front Street extension in Toronto and the widening of Steeles Avenue between Markham Road in Toronto and Taunton Road in Durham.

Although many sensible proposals for transit enhancements in the GTA have emerged over the years, if the goal is to actually get something done, there is value in working within the boundaries of these recent political statements. For this reason, this study attempts to prioritize some of the municipal transit proposals embodied in *Toronto Transit City* and *MoveOntario 2020* in order to develop a plan of action for transit initiatives that could be considered as regionally significant, subject to two caveats.

First, *Toronto Transit City* proposes new light rail transit service (LRT) in seven corridors. *MoveOntario 2020* is comprised of 52 distinct projects including Toronto's LRT projects. Both can be characterized as examples of 'top-down' planning in terms of *a priori* determination of routes and technologies that have not been subject to any comprehensive analyses of either needs or cost-effectiveness.

Second, of the 52 projects included in MoveOntario 2020, the first 28 deal solely with GO Transit bus rapid transit (BRT) and commuter rail projects. By definition, all GO transit services are regionally significant, affecting both the City of Toronto and the surrounding regional municipalities. All have probably already been subject to priority setting within GO Transit's long-term strategic plan.

The remaining 24 municipal transit projects included in *MoveOntario 2020* have not. They will have to compete for funding from the federal and provincial governments and

will require evaluations in conformance with federal guidelines. Of these, only one is in Durham and two are in Hamilton. The 28 GO Transit projects, however, deal with other travel needs in Durham, as well as York, Peel, and Halton.

By and large, both *Toronto Transit City* and *MoveOntario 2020* are examples of 'top-down' planning where elected officials dictate what their professional advisors will implement, a reversal of the usual approach in which proposals are generated by professionals, in response to identified needs, for consideration by the body politic.

Toronto Transit City, described in Chapter 2, is comprised of a 120 km network of new LRT services throughout the City shown in Figure S.1. In Toronto, LRT is generally viewed as a form of 'higher order' transit that requires less capital investment than underground or elevated structures. The common feature of the proposed routes is a level of service that is better than can be achieved by operation in mixed traffic *through extensive use of reserved lanes on existing arterial roads*.

FIGURE S.1 – TORONTO TRANSIT CITY LRT CORRIDORS

LRT technology has been selected over bus technologies, presumably because of user preferences for rail transit, a higher likelihood of diverting automobile users to transit, the

capability to provide higher capacity by operating multiple unit streetcars or 'trains', and because LRT is considered to be more compatible with the 'Avenues' concept for urban design embodied in Toronto's Official Plan.

It is important to emphasize that true LRT service on existing streets can only be realized through a reduction in road capacity for automotive traffic and parking or, alternatively, road widening to accommodate exclusive LRT lanes. *This is a fundamental policy decision on the part of Toronto's officials wishing to implement LRT on existing streets*.

An examination of the proposed routes shows a wide variance in the nature of available rights-of-way. Existing route conditions for most of the *Toronto Transit City* routes can be viewed at www.GTATransportation.com. These conditions suggest that while some route segments could easily accommodate exclusive LRT lanes, others cannot. In addition, while some segments would be a good 'fit' from the standpoint of urban design, elsewhere, exclusive LRT lanes would be viewed as an undesirable intrusion.

The process through which *Toronto Transit City* was developed leads to a few questions regarding:

- the lack of clarity regarding the main goals the proposed plan is intended to achieve,
- the *a priori* selection of LRT technology for all of the new routes (to the exclusion of other higher order transit technology), and
- the practicality of implementing true LRT services in their own rights-of-way on all of the designated routes.

Chapter 3 provides observations on the *MoveOntario 2020* announcement, one of the more interesting provincial government announcements made in years. Funding is promised independently of federal government collaboration over the next 12 years, thus improving the predictability of transit finance. The Ontario government also promises to streamline the troublesome EA process, the cause of so much delay and indecisiveness that has characterized transportation planning in the GTA for a number of years.

To some extent, *MoveOntario 2020* shares some of the same characteristics of *Toronto Transit City* with regard to the lack of clearly defined goals and the premature selection of technology. In the case of the Hurontario corridor, for example, LRT technology is specified in *MoveOntario 2020* even though Mississauga is only now beginning its evaluation of higher-order transit alternatives, land use planning, and urban design for this corridor.

Of the GO Transit improvements, new commuter rail services on Canadian Pacific's (CP) North Toronto Subdivision is an integral component of the proposed expansion of commuter rail service. This main line, however, is probably CP's most intensively used freight route. Given the competitive nature of the railway industry, introducing commuter rail service on this route would involve onerous, time-consuming, and ultimately costly negotiations with the railway's owners.

Rapid transit service to Pearson International Airport and extension of the Yonge subway from the Finch terminal to Langstaff are also included in the *MoveOntario 2020* list of projects. A final decision on the airport project is awaiting completion of an EA, the terms of reference for which have sat idly with the Ontario government for over 15 months.

Chapter 4 provides observations on recent growth trends and changes in travel behaviour that can be expected. Over the last five years transit mode shares appear to have stabilized and even increased modestly in some areas even though there has been an overall decline over the last 20 years. According to a recent *Metrolinx* report, however, total GTA transit trips by 2031 are expected to increase by 45 percent, parallel, more or less, with a 44 percent growth in population over the same time period. To place these predictions in perspective, from 1986 to 2006, transit use in the GTA and Hamilton increased only by about 14 percent for a total population increase of about 45 percent.

Chapter 5 suggests a number of regionally significant transit initiatives, building primarily on the non-GO Transit municipal transit proposals. The proposed projects are intended to maximize opportunities for substituting travel by transit for travel by automobile in those areas covered by the municipal transit projects included in *MoveOntario 2020* and *Toronto Transit City*. These initiatives are shown in Figure S.2. The initial stage of network development consists of:

1) A continuous LRT service between eastern Scarborough (from Kennedy Road) and the Downsview subway station in the Sheppard Avenue corridor, including conversion of the Sheppard subway to LRT, and a possible extension of LRT service from the Downsview subway station to the City boundary via Dufferin Street and the Finch Hydro corridor.

2) A continuous higher-order transit route linking Scarborough from Kennedy Road to Mississauga within the Eglinton Avenue corridor using either a combination of RT, LRT, and BRT technologies, or an extension of the RT technology, or new subway construction.

   For each of the RT, LRT, and subway alternatives, an important variant to be considered would involve shortening the rail portion of the route and extending the Mississauga Transitway BRT technology to a bus/rail transit transfer point west of Keele Street.

3) A network of higher order transit that integrates the Brampton Acceleride project, the Hurontario corridor, and the Mississauga Transitway, preferably using a common technology that minimizes the need to transfer and provides a high level of connectivity throughout the areas served by these three transit initiatives.

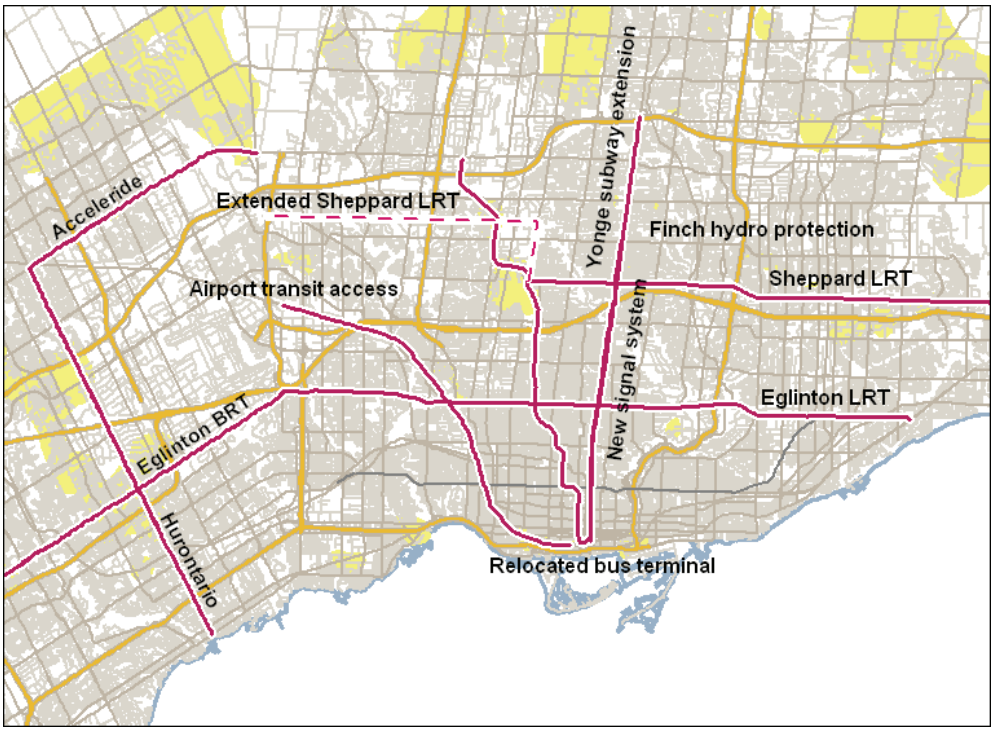
4) Extension of the Yonge subway north to Langstaff, including modifications to a number of existing stations and replacement of the block signal system now used on the entire Yonge-University-Spadina subway by a modern, moving block system of train control. *Even without a subway extension, modernization of the Yonge train control system to increase frequency of service and capacity for existing users is long overdue.*

5) Protection of a right-of-way in the Finch Hydro corridor for potential long-term use as a busway for both public and privately operated buses.

6) Relocation of the existing bus terminal from Bay and Dundas to permit better access to Union Station for all inter-city bus services offered by public and private operators.

7) Improved transit access to Pearson International Airport from Union Station.

FIGURE S.2 – PROPOSED REGIONAL INITIATIVES



Chapter 6 provides preliminary results of an assessment of this network from the standpoint of potential benefits. *Direct* benefits for existing transit users and potential benefits for automobile users that might be diverted to transit are represented by estimated savings in transit travel times.

For purposes of illustration, an example of these potential benefits is shown in Figure S.3 for Central Etobicoke, one of several areas analyzed. The data are presented in terms of cumulative travel-time savings.

In this example, comparing the existing and improved transit networks, only about 150 transit *users* would save up to 20 minutes of 'in-vehicle' travel time (excluding walking and waiting times) during the AM peak period. These numbers are small because present users are likely already well served by the transit system. For automobile users, however, the same example suggests that about 2,250 potential users could save up to 20 minutes. The shaded area is thus a measure of potential benefit.

FIGURE S.3 – POTENTIAL TRAVEL TIME BENEFITS FOR CENTRAL ETOBICOKE

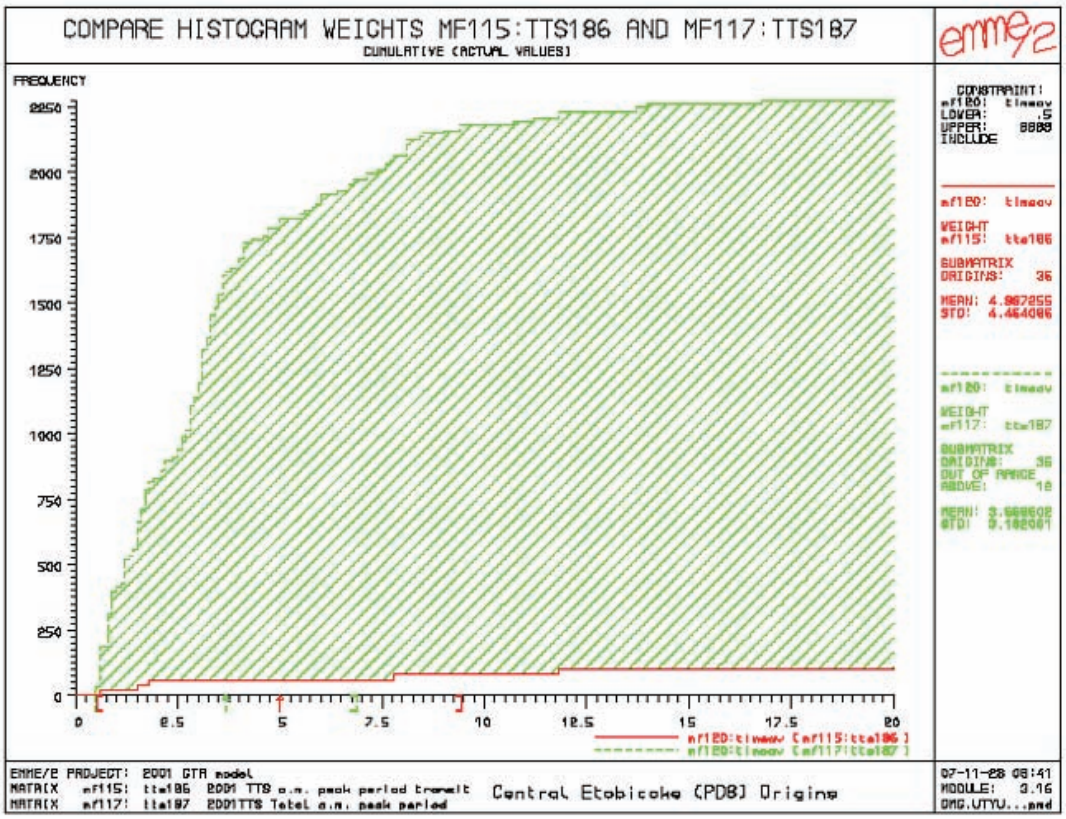
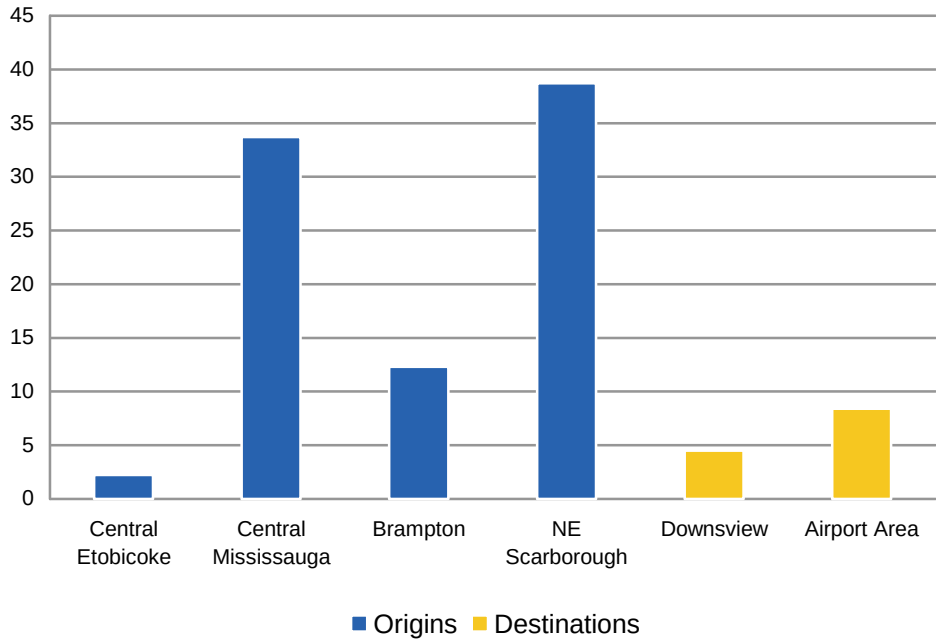


Figure S.4 compares these results in a different form, highlighting some of the differences in the anticipated impacts of the network of transit improvements. A more comprehensive analysis would examine many more geographical sub-areas within the GTA to obtain a better idea of which geographic areas are the main beneficiaries, as well as how individual elements of the proposed network perform with respect to this measure of benefit.

FIGURE S.4 POTENTIAL SAVINGS FOR SELECTED AM PEAK PERIOD AUTO USERS (IN 1000S)
(CUMULATIVE SAVINGS UP TO 20 MINUTES IN TRANSIT TRAVEL TIME)



Chapter 7 treats finance. All recent discussion of municipal finance has been dominated by general agreement on the conflict between the need for infrastructure expansion to keep pace with growth in population and the inability of municipalities, alone, to finance these needs.

In this regard, *Toronto Transit City* is currently estimated at $6.1 billion in capital investment. In addition, *MoveOntario 2020* includes a number of high cost projects, such as extension of the Yonge subway to Langstaff (as well as the necessary modernization of the train control system), electrification of the Lakeshore West GO Transit commuter rail service, and LRT in the Hurontario corridor.

Although the costs of these projects are included in the *MoveOntario 2020* estimates, once the current environmental assessments are completed, these costs estimates will undoubtedly rise well above those assembled for purposes of the announcement. In

particular, costs assumed for new commuter rail services on CP's North Toronto Subdivision are very likely to have been under-estimated.

For these reasons, it seems clear that, in addition to funding announced under *MoveOntario 2020*, substantial funding will be required from additional sources.

Experience with a variety of infrastructure initiatives, however, shows that short-term, project-specific programs lack continuity, create uncertainty, and alter local priorities. Except for gas tax transfers, such programs are often characterized by inefficiencies in administration, lengthy delays between announcements and the actual flow of funds, unfulfilled expectations, and occasionally, claims of inequitable treatment.

Funding programs that are required to stand the test of the annual budgeting process are simply inadequate to provide the predictability needed for effective long-term infrastructure planning. Long-term predictability requires *legislation*, not short-term *programs*.

Legislation can provide guaranteed streams of revenue that, at a minimum, enhance the capability of public agencies to self-finance long-term infrastructure more effectively and, in the best case, through the use of 'revenue covenants', provide opportunities for financial community participation in the delivery of needed infrastructure.

In this regard, the FCM's recommendation that the federal *Gas Tax Transfer*, appropriately indexed for inflation and population growth, be embodied in an Act of Parliament, is precisely on target. Allowing these guaranteed streams of funding to be pledged as security for the issuance of conventional debt instruments would offer additional advantages, particularly if some degree of tax exemption were part and parcel of special transit legislation. Similar action by the Province of Ontario would further accelerate the expansion of transit infrastructure and services.

Road pricing also offers opportunities for additional revenue, as well as changes in travel behaviour. However, there is a need for an objective assessment of the potential of advanced information-technology-based, road pricing schemes that neither disadvantage one geographical area over another nor contradict goals for intensification and redevelopment.

The main messages of this report are summarized in Chapter 8. On a 'go forward' basis, the recommended actions are to:

- begin two major engineering studies related to the Sheppard and Eglinton LRT corridors intended to validate some of the concepts proposed in this study, including conversion of the Sheppard subway to LRT,
- consider alternate technologies for the Hurontario LRT that maximize potential integration with the Brampton Acceleride and Mississauga

Transitway projects and offer seamless, higher order transit in this western sector of the GTA,

- approve the terms of reference for the environmental assessment of the proposed airport rapid transit service,
- enact provincial and federal government legislation to guarantee long-term predictable and indexed funding as revenue covenants that can be used to secure commercial debt instruments for the construction of transit infrastructure,
- protect a sufficient right-of-way within the Finch hydro corridor to permit the operation of future bus services on an exclusive busway, and
- take the first steps to assess how road pricing can be used as a means of financing GTA transportation needs in a manner that is equitable and one that also supports local and regional goals for intensification and redevelopment.

contents

1. introduction

BACKGROUND

Concerns about transportation gridlock in the GTA are receiving ever-increasing attention, driven in large part by the obvious gap between growth in population and investment in transportation infrastructure. Ontario's 2005 *Places to Grow Act*, for example, stresses urban sprawl and the deficit in current infrastructure as key challenges to be faced in the Greater Golden Horseshoe and emphasizes the need for "an extensive multi-modal system anchored by efficient public transit, together with highway systems".

As noted elsewhere, however, our collective ability to 'get things done' appears to be on the decline, largely due to conflicting objectives, a multiplicity of government agencies, questionable models of transportation agency governance, the lack of realistic financial models, and a very cumbersome process for the review of transportation decisions. [1]

Deterioration in the performance of the overall transportation system can also be attributed to the manner in which growth has evolved, generally in ways that are very difficult to serve by efficient public transportation and ways which have resulted in lifestyles that are increasingly automobile dependent.

The RCCAO sponsored *Transportation Challenges* study pointed out that there was no comprehensive transportation plan for the entire GTA, let alone one that was consistent with the *Places to Grow Act*. With respect to meeting future needs, the *Challenges* study also concluded that cost-effectiveness and providing benefits to the greatest number of people should drive both the choice of technology and the selection of investment priorities.

RECENT INITIATIVES

Since publication of the *Transportation Challenges* report, a number of events have occurred that relate primarily to transit plans for the GTA, almost to the exclusion of any proposals for major expansion of the region's highway network. They are silent on such road issues as the Front Street extension in Toronto and the widening of Steeles Avenue between Markham Road in Toronto and Taunton Road in Durham.

First, in the fall of 2006, the Ontario government established the Greater Toronto Transportation Authority (recently renamed *Metrolinx*) as the agency responsible for the coordination, planning, financing and development of an integrated multi-modal transportation network.

[1] Residential and Civil Construction Alliance of Ontario (RCCAO), *Transportation Challenges in the Greater Toronto Area*, November 2006.

The governing body of *Metrolinx* is comprised of two provincial appointees (the Chair and Vice Chair) and nine members appointed by the City of Toronto and regional municipalities of the GTA and Hamilton. Except for one of the City of Toronto's four members, the remaining eight City and regional appointees are elected officials.

Metrolinx has already initiated a start on the implementation of a GTA-wide universal fare card system and is now beginning the process of developing a comprehensive transportation plan for the GTA.

Second, in March 2007, the federal and provincial governments jointly announced agreement to fund:

- an extension of the Spadina Subway from Downsview station to a terminal at the Vaughan Corporate Centre,
- segments of the long proposed Mississauga Transitway,
- Brampton's Acceleride project,
- expansion of York Region's network of VIVA bus services, and
- rapid transit for the Region of Durham.

Third, in March 2007, as well, the Mayor of Toronto announced plans to build a 120 km network of electric light-rail lines throughout the entire City on, or under, existing arterial roads. Only light rail transit technology (LRT) is proposed for the plan known as *Toronto Transit City*.

Fourth, in its 2007 budget, the federal government replaced previous municipal infrastructure programs (notably the Public Transit Capital Trust) with a new, seven-year, $8.8 billion Building Canada Fund (BCF) and funding for public-private partnerships (P3). Budget 2007 is completely silent on the matter of transit funding or any response to the N*ational Transit Strategy* proposed by the Federation of Canadian Municipalities. [2]

Finally, in June 2007, the Premier of Ontario announced *MoveOntario 2020*, a $17.5 billion plan to fund 52 transit projects in Ontario, including all the LRT elements of *Toronto Transit City*, over the next 12 years. That total assumes the federal government will provide $6 billion, but the provincial share of $11.5 billion is independent of obtaining the federal government's assumed contribution. Though not explicit, it appears that the provincial government intends to channel a great deal of this new funding through *Metrolinx*.

[2] Federation of Canadian Municipalities, Big City Mayors' Caucus, *National Transit Strategy*, Ottawa, 5 March 2007.

PLANNING IMPLICATIONS

Traditionally, the development of transportation plans has followed a number of fairly straightforward steps that, as illustrated in Figure 1.1, begin with problem identification and end with recommendations. In this 'bottom-up' approach, the first step, problem identification, is the really critical one. It may be as simple as demonstrating that growing congestion will impose tremendous costs that impact negatively on the economic competitiveness and general attractiveness of the entire GTA as a place to live and work.

The Federal/Provincial announcement, *Toronto Transit City*, and *MoveOntario 2020*, all raise interesting questions as to the nature of policy development and the transportation planning process. *Toronto Transit City* and *MoveOntario 2020* both emerged as preludes to election campaigns. They are examples of 'top-down' planning where elected officials dictate what their professional advisors will implement, a reversal of the usual approach in which proposals are generated by professionals, in response to identified needs, for consideration by the body politic.

Both the process and the outcomes lead to a number of questions regarding:

- the main objectives and goals that the proposed plans actually attempt to achieve,
- the *a priori* selection of LRT technology for all of *Toronto Transit City* (to the exclusion of other higher order transit technology), and
- the practicality of implementing true LRT and BRT services in their own rights-of-way on all of the designated routes.

Some of these issues are treated in subsequent chapters of the report.

PURPOSE OF THE STUDY

Many sensible proposals for transit enhancements within the City of Toronto and throughout the GTA have emerged over the years. However, since so much political capital has already been invested in *Places to Grow*, *MoveOntario 2020,* and *Toronto Transit City*, if the goal is to actually get something done, the best course of action is probably to work within the parameters of these recent announcements.

For this reason, this study attempts to prioritize some of these proposals in order to develop a plan of action for a number of the more regionally significant transit initiatives. Recognizing that all 52 projects included in *MoveOntario 2020* cannot be implemented immediately, the main purpose is to identify a number of early transportation initiatives that are of GTA significance and which are likely to generate the highest public benefits in relation to costs. The study approach is shown in Figure 1.2.

Because this study has been carried out independently of other government sponsored studies, it is not influenced by the political objectives of any one government agency or department. All results are entirely within the public domain.

Undertaking an independent study of this nature has both advantages and disadvantages. The main advantages relate to objectivity and the lack of politically or quasi-politically motivated screening of material before it is placed in the public domain. The main disadvantage is that without agency 'ownership', no one may feel compelled to act upon the recommendations.

FIGURE 1.1 – COMPARISON OF PLANNING PROCESSES

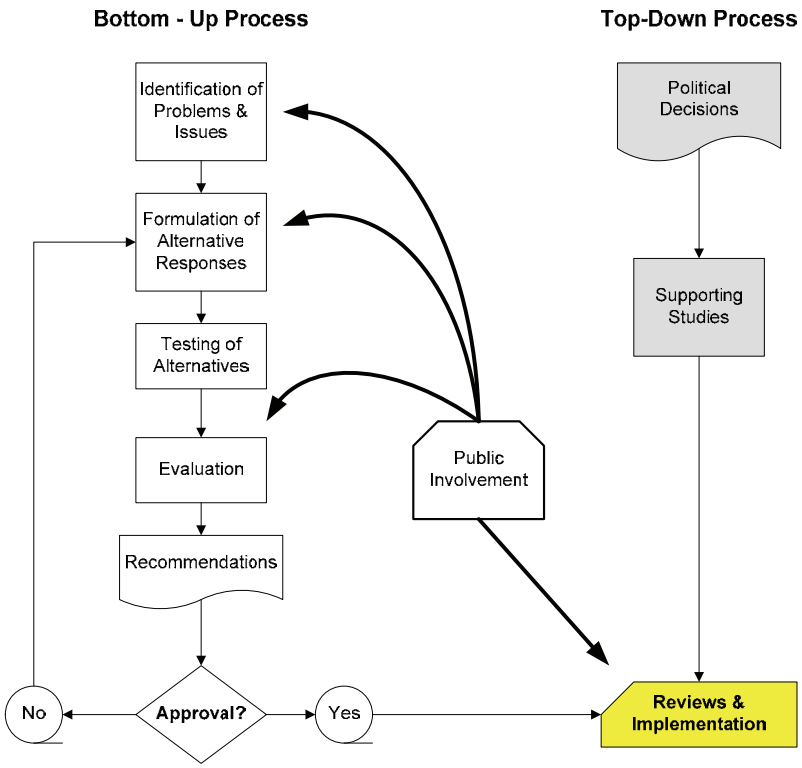
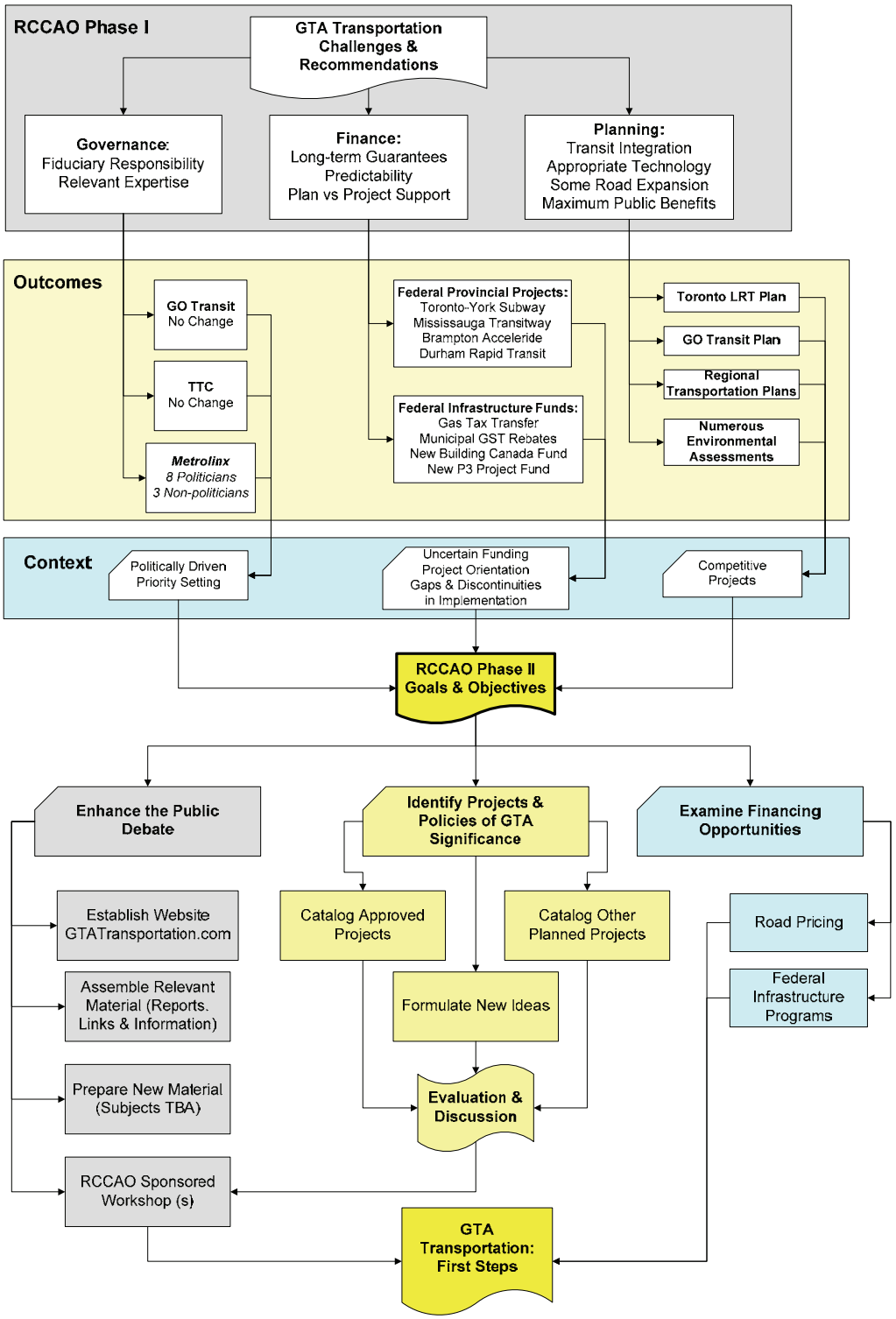


FIGURE 1.2 –STUDY APPROACH



2. toronto transit city

THE CONCEPT

Toronto Transit City is based on an extensive network of LRT, an acronym that is generally interpreted to mean either light *rail* transit or light *rapid* transit. LRT technology has been selected exclusively in *Toronto Transit City* presumably because:

- Toronto's experience indicates a high degree of transit user preference for *rail* (streetcar), as opposed to bus service,
- LRT is perceived to have a higher likelihood of diverting automobile users to transit,
- LRT is capable of providing higher capacity through the operation of multiple unit streetcars configured as 'trains', and because
- LRT is considered to be more compatible with the 'Avenues' concept for urban design embodied in Toronto's Official Plan.

Perhaps the main argument for LRT is based on the pervasive idea that buses are a 'second-class' mode, compared with rail, that neither attracts the same level of ridership nor serves as well as a catalyst for 'transit friendly' development.[3]

Although the intent of Toronto Transit City is clear, namely, to provide higher order transit throughout the entire City, the *a priori* direction that only LRT be considered raises the question as to why other forms of transit technology have been excluded, particularly since the environmental assessment process stipulates consideration of alternatives to any proposed undertaking. [4]

THE TECHNOLOGY

LRT is generally viewed as a form of 'higher order' transit that requires less capital investment than underground or elevated structures by making use of existing *surface* rights-of-way such as streets and railway corridors. LRT can also been constructed as a form of 'pre-metro' intended for eventual conversion to conventional subway or rapid transit. The concept of LRT has existed for quite some time throughout North America and Europe. Typically, LRT involves rail vehicles operating:

- in mixed traffic within segments of existing streets,

[3] Paul S. McCauley and James W. Swanson, "Creating a Light Rail Transitway Within Existing Arterial Street Right of Way", *Transportation Research Record 1361*, Washington: Transportation Research Board, 1992.

[4] At its May 2007 meeting, the Commission approved a policy directing management and staff of the TTC to investigate only light rail technology in all environment assessments of these routes.

- in reserved or partially exclusive lanes on existing streets,
- in fully segregated surface lanes, on elevated structures, or in tunnels,
- within railway and utility corridors, as well as
- various combinations of the above.

At present, there are really no examples of LRT within the GTA except for a short section of streetcar service on the Queensway. Improved streetcar services are provided in partially dedicated rights-of-way on Spadina Avenue, St. Clair Avenue and Queen's Quay, examples of which are shown in Figure 2.1. These single unit streetcars are still subject to delay at intersections for cross traffic or for automobile left turns ahead of the streetcar.

The one common feature of most LRT applications is that at least some portion of the route provides service that *is better than can be achieved by operation in mixed traffic*. Usually, as well, it involves multiple vehicles combined as trains, as illustrated in Figure 2.2.

Methods of protecting exclusive rights-of-way are particularly important from the standpoint of community acceptance by local residents and businesses. These methods include physical barriers (such as curbs, as in the case of Spadina Avenue), elevating the track structure (as in the case of St. Clair Avenue), or simply through regulation and enforcement.[5] Methods of protection must also permit use of the right-of-way by emergency vehicles and, under special circumstances, by other automotive vehicles.

LRT service on existing streets necessitates a reduction in road capacity for automotive traffic and parking or, alternatively, road widening to accommodate the exclusive LRT lanes. *This is a fundamental policy decision on the part of municipal officials wishing to implement LRT on existing streets.*

Capacity and average speed are the two key measures of LRT performance. Capacity is determined by frequency of service, vehicle dimensions, and train length. For each of these factors, there are practical limits for surface operation within existing roads.

Stop spacing, dwell times for passenger boarding and alighting at stops, and delays due to other traffic determine average speed. Dwell times are influenced by the method of fare collection [6] and delays due to other traffic depend upon enforcement and the extent to which transit vehicles are given priority over automotive traffic.

[5] Advances in information technology certainly facilitate enforcement of exclusive transit lanes without the need for physical barriers or special designs. In London (UK), for example, exclusive bus lanes are enforced using strategically located video cameras that record the license numbers of violators. Even on various highways within the GTA, high occupancy vehicle (HOV) lanes are enforced simply through normal policing activity.

[6] For example, if payment is required upon boarding, dwell times are longer because all doors cannot be used.

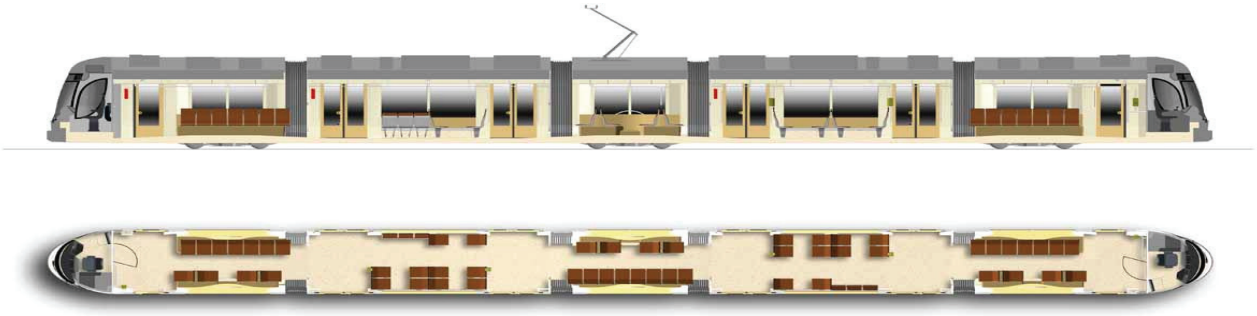
FIGURE 2.1 – EXAMPLES OF IMPROVED TORONTO STREETCAR SERVICE

St. Clair Avenue

Spadina Avenue

FIGURE 2.2 – EXAMPLES OF MODERN LIGHT RAIL VEHICLES

(Photo courtesy of Bombardier.)



Length	32.37m
Width	2.4m
Entrance height	310mm
Maximum speed	70kmh
Gauge	1.435mm
Seated passengers	54
Standees (4 Pers./m²)	133
Total Passengers	187m

Stop spacing is a particularly important design parameter for LRT service in the City of Toronto. For present streetcar service, stop spacing is of the order of 300 m or so. Even though average speeds can be increased with longer stop spacing, there is a critical service design trade-off between average speed and passenger convenience (that is, additional walking distances). At some point, longer stop spacing necessitates parallel local bus service, a service that may be both infrequent and under-utilized.

In summary, LRT technology has the potential of offering faster, higher capacity service on existing streets, depending upon the extent to which exclusive lanes are made available for this form of service and methods of traffic control (including turn prohibitions) that give priority to transit vehicles.

The proposed network raises the matter of the practicality of implementing true LRT services in their own rights-of-way on the designated routes. Improved streetcar services on Spadina Avenue, Harbourfront, and St. Clair Avenue are still characterized by delays at signalized intersections that reduce average speeds, more typical of streetcar service in mixed traffic than true LRT.

In almost every case where the street or road allowance is shared with other automotive traffic, *true LRT can only be achieved at the expense of reduced automobile capacity, as well as restrictions on automobile turning movements, and on-street parking*.

Thus the main question concerns the degree to which reductions in road capacity and on-street parking will be acceptable on a community-wide basis.

THE NETWORK

The proposed *Toronto Transit City* network totals 120 km of new LRT service, to be implemented by 2021, in seven specific corridors, each on its own right-of-way. These seven corridors are shown in Figure 2.3.

An examination of the proposed routes shows a wide variance in the nature of available rights-of-way from the standpoint of existing pavement widths and road allowances, adjacent land use, the presence of medians, and major barriers such as bridges and underpasses, as well as differences in traffic conditions and pedestrian and cycling facilities. In some cases route segments are characterized by fairly recent development at densities that are likely to generate significant ridership, whereas in other cases, some route segments traverse considerable sections of undeveloped land.

From a strictly technical standpoint, existing pavements and road allowances could accommodate exclusive LRT lanes in some locations more so than others.

From the standpoint of urban design, LRT service would be a good 'fit' with respect to adjacent activity; elsewhere, there are examples of exclusive LRT lanes that would be viewed more as an undesirable intrusion leading to considerable local opposition.

Although the practicality of introducing exclusive LRT lanes on the proposed route is now the subject of TTC and City Planning Department assessments, there will clearly be a need for underground construction in some locations (notably on Eglinton Avenue), elevated construction elsewhere, and some changes in route alignment.

FIGURE 2.3 – TORONTO TRANSIT CITY LRT CORRIDORS

Existing route conditions for some of these routes can be viewed in a series of photographs available on www.GTATransportation.com. Selected photos are also referenced in comments pertaining to specific routes summarized below.

For these routes, the main assumptions are as follows:

- dedicated LRT lanes would be provided over the entire length of the corridor described, except where noted,

- enforcement would be achieved through digital photography, video cameras, or some form of information technology based data collection and control, rather than the construction of physical barriers,
- fare collection methods would be modernized and standardized so as to minimize stop dwell times for passenger loading,
- stop spacing would generally be about 500 m in order to improve average speed but avoid the need for parallel local bus service,
- a significant number of automobile turn restrictions would be introduced at most cross streets and signalized intersections,
- left turns from most driveways would be prohibited, and
- timing of traffic signals would be altered to maximize opportunities for transit vehicle priority.

In addition, although beyond the scope of this study, special consideration should be given to grade separations (underpasses or overpasses) at selected locations where the LRT route crosses major arterial roads. There are examples in Ottawa where a recent highway overpass was implemented over a very short period of time, and in Toronto, where a relatively short tunnel under the Canadian Pacific railway at Wynford Drive was constructed without any disruption to railway service.

Don Mills (Steeles Avenue to Bloor-Danforth Subway)

A significant segment of this route has already been widened to provide HOV (more than 2 occupants per automobile) and reserved bus lanes. Within that segment, generally speaking, there would be few problems in re-configuring the roadway to provide double track, dedicated centre lanes. Some road widening would be necessary for stop platforms.

South of Overlea Boulevard, however, Don Mills Road itself narrows. Access to the Bloor-Danforth subway via O'Connor Drive and Pape Avenue is problematic with respect to the width of the right-of-way.

Given the recent construction of reserved curb bus lanes, as well as the geometric constraints south of the Don Valley Parkway, it is certainly not clear that better service could be provided by LRT rather than BRT. In addition, it is not clear why consideration has not been given to extending this route south of the Bloor-Danforth subway to provide direct downtown access.

Sheppard Avenue

Construction of LRT between Morningside Drive and the present terminal of the Sheppard subway at Don Mills Road presents few technical problems aside from the reduction in road space available for automobiles. The main engineering issues relate to crossing the Don Valley Parkway and interfacing with the existing subway terminal.

Figure 2. 4 shows selected photos of Sheppard east of Yonge and sections west of Yonge St. (as treated in Chapter 5). Here, as well as for other routes, there is some concern regarding pedestrian access to centrally located LRT stops since both traffic volumes and vehicular speeds are high. For current traffic flow characteristics, traffic signals would probably be required at every LRT stop that is not already located at a signalized intersection.

FIGURE 2.4 – SELECTED CROSS SECTIONS MOVING WEST IN THE SHEPPARD CORRIDOR

MCCOWAN
ADEQUATE
SPACE
HIGH TRAFFIC
VOLUMES
REDEVELOPMENT
POTENTIAL

PHARMACY
ADEQUATE
SPACE
HIGH TRAFFIC
VOLUMES
REDEVELOPMENT
POTENTIAL

YONGE
REQUIRES
TUNNEL

SENLAC
LRT COULD
SURFACE

APPROACHING
BATHURST
WIDEN BRIDGE
OR NEW
ELEVATED
STRUCTURE

FOLLOWING
BATHURST
SUFFICIENT
WIDTH
REDEVELOPMENT
POTENTIAL

Eglinton Crosstown (Kennedy Station to Pearson Airport)

As shown in Figure 2.5, from Kennedy, there is generally ample right-of-way for a central LRT facility as far west as Leslie Street. For the existing land use west of Leslie Street, however, it is generally acknowledged (and reflected in Toronto Transit City) that any rapid transit service based on dedicated lanes would require tunnelling. The tunnel section would probably begin between Leslie Street and Brentcliffe (or Laird Drive), extending west to about Keele Street.

Beyond that point, a surface right-of-way for dedicated LRT lanes appears feasible as far as the boundary with Mississauga and, as treated in Chapter 5, could be integrated with the Mississauga Transitway at a major BRT/LRT transfer terminal. In fact, an argument can be made for extending the Mississauga Transitway as BRT to an inter-modal terminal where the Eglinton LRT tunnel ends.

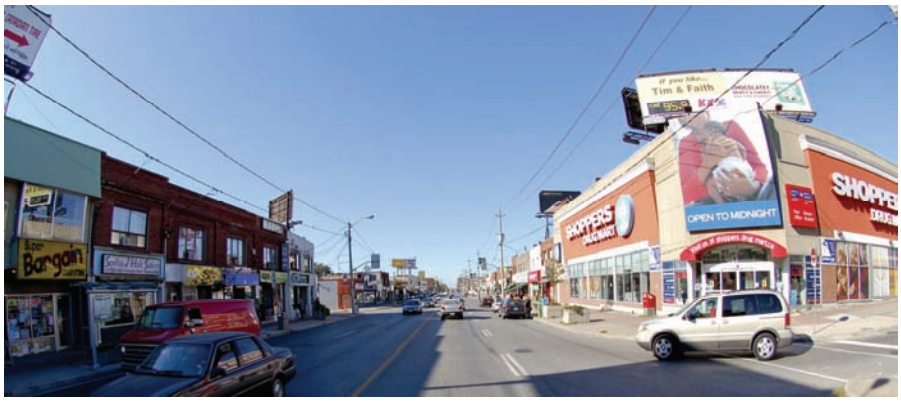
FIGURE 2.5 – SELECTED CROSS SECTIONS MOVING WEST IN THE EGLINTON CORRIDOR

WEST OF WARDEN
ADEQUATE SPACE FOR LRT
REDEVELOPMENT POTENTIAL
HIGH TRAFFIC VOLUMES

APPROACHING BRENTCLIFFE
LOGICAL START OF TUNNEL

WEST OF AVENUE
ALREADY DEVELOPED - SIGINIFICANT RIDERSHIP

WEST OF DUFFERIN
LRT UNDERGROUND REDEVELOPMENT POTENTIAL



WEST OF KEELE
LOWER DENSITY LAND USE SUITABLE FOR BRT

WEST OF ISLINGTON
LOWER DENSITY LAND USE SUITABLE FOR BRT

Although this LRT route is intended to connect to Pearson Airport, there are issues related to technical feasibility and the questionable attractiveness of such service for airport users. In addition, in view of plans for the *Blue 22* rapid transit link between Union Station and Pearson International Airport, advocated by both Transport Canada and the Greater Toronto Airports Authority (GTAA), and in view of recent construction of the GTAA's Automated People Mover, it is unlikely that LRT service within the airport property would be consistent with GTAA's Airport Development Plan.

OTHER CITY OF TORONTO STREETCAR IMPROVEMENTS

Toronto Transit City raises a few questions as to the value added by the proposed new LRT routes relative to improvements to existing streetcar services, notably on King and Queen Streets. Both carry very high volumes (that exceed, for example, ridership on the Sheppard subway) but offer very slow and unreliable service, largely due to road congestion and frequently spaced intersections within downtown Toronto.

Previous proposals by the TTC to introduce the concept of a 'transit mall' on central King Street, using schemes that would eliminate automobile through traffic but still provide access, were not sufficiently supported by the City's planning officials. Experimental service in reserved lanes and proof-of-payment fare collection (that would reduce stop dwell times and thus improve average speeds) was eventually discontinued, largely due to difficulties associated with enforcement of exclusive lanes and matters related to fare collection.

As noted above, however, enforcement of exclusive lanes can be handled through advances in information technology as used, for example, in the case of exclusive bus lanes within central London associated with that now world famous road pricing scheme.

In addition, within the King and Queen streetcar corridors, there is an opportunity to greatly improve level of service (both reliability and average speed) by taking advantage of underground structures that were built during the first phase of construction of the Yonge Street subway (in anticipation of an eventual Queen Street subway).[7] In particular,

- reviving some of the TTC's fairly recent plans for King Street would add considerably to the capabilities and performance of streetcar service within downtown Toronto, and
- by constructing an underground segment between say, Bathurst Street and Sherbourne Avenue (about 3 km), both the capacity and level of service provided by the Queen streetcar route could be enhanced considerably.

[7] An early Metropolitan Toronto transportation plan included a Queen Street subway, subsequently replaced by the Bloor-Danforth subway.

ALTERNATIVE TECHNOLOGY

Although Toronto Transit City is predicated entirely on the application of LRT technology, there are certainly a variety of views on the overall advantages and desirability of LRT as compared to bus operation in protected lanes.

In the previously cited paper by McCauley and Swanson, the authors note:

- LRT and bus rapid transit (BRT) have much in common,
- they have similar average speeds if line, station and passenger entry/exit conditions are similar,
- it is possible to use identical route designs and operations plans,
- both can employ low-floor vehicles, and
- the two modes may be more broadly competitive than is usually recognized, but
- the "required capacity ceiling may favour LRT".

With regard to the argument that LRT presents better opportunities for transit oriented development consistent with the City of Toronto's Official Plan, the same authors point out that:

> the literature contains examples indicating this to be the case, but without irrefutable documentation. There are also studies concluding that there is no recognizable difference between light rail (or other rail transit) and high quality bus service, in terms of user response and influence on development.

In any case, as a first step in implementing any of the new *Toronto Transit City* routes, environmental assessments will be necessary, assessments that presently require consideration of alternatives to the proposed undertaking. These alternatives certainly include bus rapid transit.

3. MoveOntario 2020

ELEMENTS OF THE PLAN

MoveOntario 2020 is one of the bolder provincial government announcements in years. It commits funding independently of federal government collaboration over the next 12 years in a way that addresses a key issue in transit finance, namely, the predictability of long term funding to facilitate comprehensive plan development. The quantum is actually not as important as the guarantee that funds will be available. [8]

MoveOntario 2020 provides a foundation for proceeding with comprehensive transit planning throughout the GTA inasmuch as:

- promised funding is earmarked for a 'plan' (shown in Figure 3.1), rather than individual projects, although admittedly, some 52 specific projects were identified, and
- the lengthy environmental assessment (EA) process, viewed by many as a major obstacle in actually 'getting things done', will be streamlined and shortened according to the Premier's announcement.

Defining the actual plan in terms of specific 'lines on a map', however, may prove to be a weakness, largely because they appear to have been hurriedly assembled with little assessment of need or cost effectiveness of the very large number of individual projects. Undoubtedly, there will be some degree of competition regarding priorities and staging of the proposed '52 project' network, a review of which has been mandated to Metrolinx.

The complete list of projects included in the Premier's June, 2007 announcement is provided in Table 3.1. Although the provincial commitment to serious funding of these projects has certainly been welcomed by all GTA municipalities, the *a priori* specification of a large number of individual projects that have never been subject to any form of needs assessment or determination of potential public benefits may not be quite as positive an aspect. *MoveOntario 2020* is essentially an amalgam of politically driven wish lists, raising questions as to the need for any kind of transportation planning at all, other than to support preconceived politically driven aspirations.

Much of *MoveOntario 2020* is comprised of individual projects already proposed in the LRT network of Toronto Transit City. For this reason, the following sections deal primarily with a number of other aspects of *MoveOntario* 2020.

[8] Recall that prior to 1998, the provincial government promised funding for the Eglinton Avenue subway which was subsequently revoked with a change in government, even though construction had already begun. Such action constituted a monumental waste of taxpayer's money.

FIGURE 3.1 – PROVINCE OF ONTARIO *MOVEONTARIO 2020* ANNOUNCEMENT

3.2 EXPANDED COMMUTER RAIL NETWORK

The Premier's announcement included a substantial expansion of both GO Transit commuter rail and regional bus services.

To date, since the first commuter rail service was introduced on the Lakeshore East and West routes, expansion of service everywhere within the GTA has been characterized by the 'field of dreams' belief that "if you build it, they will come". Few services have generated much community opposition and, except for some fairly complex negotiations between GO Transit and the railways, implementation has been reasonably straightforward.

Existing commuter rail services all have obvious regional significance since they predominantly serve inter-regional travel between outlying suburban development and downtown Toronto. These services, which rely extensively on park-and-ride facilities, have also enjoyed considerable success in diverting automobile users to public transit, the primary objective of most transit planning within the GTA. More than 70 percent of commuter rail passengers, for example, report that they do have an automobile available for the same trip, but choose to use transit.

GO Transit Commuter Rail

1) GO Lakeshore West rail line capacity expansion by adding a third track from Port Credit to Oakville
2) GO Lakeshore West rail line capacity expansion by adding a third track from Burlington to Hamilton
3) GO Lakeshore East rail line capacity expansion by adding a third track from Union Station to Scarborough
4) GO Lakeshore East rail line extension from Oshawa to Bowmanville
5) GO Lakeshore rail line electrification (SuperGO)
6) GO Milton rail line capacity expansion from Union Station to Milton
7) GO Georgetown rail line capacity expansion from Union Station to Georgetown
8) GO Bradford rail line capacity expansion from Union Station to Bradford
9) GO Bradford rail line extension and capacity expansion from Bradford to Barrie
10) GO Richmond Hill rail line capacity expansion from Union Station to Richmond Hill
11) GO Richmond Hill rail line extension to Aurora Road
12) GO Stouffville rail line capacity expansion from Union Station to Stouffville and extension of the line to Uxbridge
13) New GO Crosstown rail line between Weston Road and the Don Valley
14) New GO Crosstown rail line between the Don Valley and Agincourt
15) New GO rail line from Union Station to Bolton
16) New GO rail line on the Havelock line from Agincourt to Pickering
17) New GO rail line on the Seaton line from Agincourt to Brock Road in Pickering

GO Bus Rapid Transit (BRT)

18) GO Bus Rapid Transit along Highway 403 from Oakville GO rail station to Mississauga
19) Mississauga Transitway west of Mississauga City Centre to Winston Churchill Boulevard
20) Mississauga Transitway east of Mississauga City Centre to Renforth Drive
21) GO Bus Rapid Transit northwest Toronto link from Renforth Drive to York University
22) GO Bus Rapid Transit on Markham Road from Highway 407 in Markham to Highway 401
23) GO Bus Rapid Transit on Highway 401 from Markham Road in Scarborough to Pickering GO rail station
24) GO Bus Rapid Transit connector on Highway 427 from Renforth Drive to Highway 407
25) GO Bus Rapid Transit along Highway 407 from York University to Langstaff (Yonge Street) and on to Markham Road
26) GO Bus Rapid Transit along Highway 407 from Burlington to Highway 401
27) GO Bus Rapid Transit along Highway 407 from Highway 401 to Highway 427
28) GO Bus Rapid Transit along Highway 407 from Highway 427 to York University

Subway and Other Rapid Transit

29) Yonge subway line extension north from Finch station to Highway 7 (Langstaff)
30) VIVA Markham North-South Link from Markham Centre to Don Mills station
31) Pearson Air-Rail link to Union Station
32) Hamilton east-west rapid transit on King/Main Streets from Eastgate Mall to McMaster University
33) Hamilton north-south rapid transit on James/Upper James Streets from Rymal Road to King Street
34) Brampton AcceleRide on Queen Street from Main Street to Highway 50
35) Hurontario Light Rail Transit from Queen Street in Brampton to Lakeshore Road in Mississauga
36) Eglinton Avenue Light Rail Transit from Renforth Drive to Kennedy Road in Scarborough
37) Yonge Bus Rapid Transit busway from Finch station to Steeles Avenue
38) Dundas Street West Light Rail Transit from Kipling station to Hurontario Street
39) Scarborough RT extension from McCowan station to Sheppard Avenue
40) Sheppard Avenue Light Rail Transit from Don Mills Road to Morningside Avenue
41) Finch Avenue West Light Rail Transit from Highway 27 to Yonge Street
42) Don Mills Road Light Rail Transit from Steeles Avenue to the Bloor-Danforth subway
43) Jane Street Light Rail Transit from Steeles Avenue to Jane station on the Bloor-Danforth subway
44) Malvern Light Rail Transit from Kennedy station to Malvern
45) Waterfront West Light Rail Transit from Union Station to Long Branch
46) VIVA Yonge Street from Steeles Avenue to Highway 7 (Langstaff)

47) VIVA Yonge Street from Highway 7 (Langstaff) to 19th Avenue in Richmond Hill
48) VIVA Yonge Street from 19th Avenue to Newmarket
49) VIVA Highway 7 from Highway 50 to Yonge Street (Langstaff)
50) VIVA Highway 7 from Yonge Street (Langstaff) to Cornell
51) Durham rapid transit line on Highway 2 from Oshawa to Pickering
52) Spadina subway line extension north from Downsview station to Highway 7 (Vaughan Corporate Centre)

For the foreseeable future, therefore, increases in service frequency on existing routes, as well as extensions (such as new service to Barrie) and the introduction of entirely new commuter rail routes, are all likely to attract significant increases in ridership.

The provincial plan includes new commuter rail services on Canadian Pacific's (CP) North Toronto Subdivision that would serve areas to the northeast of the City and parallel the Bloor-Danforth subway for a considerable distance. Some service from the west (Milton) could also be offered on this route. The prospect of commuter rail services to midtown Toronto has frequently been suggested in various studies, even though in the early days of GO Transit planning, officials of the day discouraged consideration of service to and from the Summerhill subway station on Yonge Street.

From a planning perspective, providing regional commuter service to both Union Station and midtown Toronto appears advantageous. At present, however, the North Toronto Subdivision is probably CP's most intensively used freight route and, given the competitive nature of the railway industry, it is by no means clear that capacity could be made available for GO Transit commuter rail service at reasonable cost.

Although there are always possibilities for railway consolidation within the GTA that could free some capacity on this route, it should be noted that regulatory decisions regarding the use of railway corridors fall completely within the jurisdiction of the federal government. There are also legislative regulations that grant the province certain priorities in the event of railway discontinuance, provided those rights are exercised within 30 days of any offer of sale to the province (or municipality, 30 days thereafter). However, as one study notes, [9]

> - CP's mainline….beyond Agincourt Yard and the North Toronto Subdivision is fully double tracked and….possibly the most heavily used railway line in the country. CP has pointed out that it would be difficult to replicate this advantageous situation in any proposed rationalization.
> - any rationalization or consolidation of facilities would only be considered if it were financially, commercially and operationally attractive to each, and
> - neither railway would be prepared to provide any of the capital outlays required to build new connections, expand existing corridors or relocate facilities.

[9] Harvey M. Romoff, *Railway Corridor Use in the City of Toronto*, Toronto: Urban Development Services, City of Toronto, December 2000.

Thus, introducing commuter rail service on this route would involve extremely onerous, time-consuming, and ultimately costly negotiations with the railway's owners. Undoubtedly, CP would expect sufficient compensation to construct alternate routes so as not to adversely affect CP's competitiveness with their main competitor, CN.

THE UNION STATION – PEARSON AIRPORT TRANSIT LINK

Rapid transit service to Pearson International Airport is also included in *MoveOntario* 2020. In November 2003, the federal government announced the successful bidder selected to build and operate a rail rapid transit service between Union Station in downtown Toronto and Pearson International Airport. Now known as *Blue22*, the main appeal of the planned service is quick and reliable access to the downtown core. It is entirely a private sector undertaking requiring no further taxpayer funding. Such service would undoubtedly reduce commercial activity at Toronto Island's City Centre Airport. *Blue22* is treated further in Chapter 5.

EXTENSION OF THE YONGE SUBWAY FROM FINCH TO LANGSTAFF

Probably the single most influential transit facility in the GTA, the Yonge Street subway opened in 1954. It is attributed to have had major influence on land use development and the TTC's high ridership. It is by far the highest volume transit service in the entire GTA.

Construction of the Yonge Subway and its extensions symbolize a great deal of what, historically, made Toronto the place that transit officials from all over the world used to visit. It is certainly a regionally significant initiative, treated in more detail in Chapter 5.

4. the growth context

THE GROWTH CHALLENGE

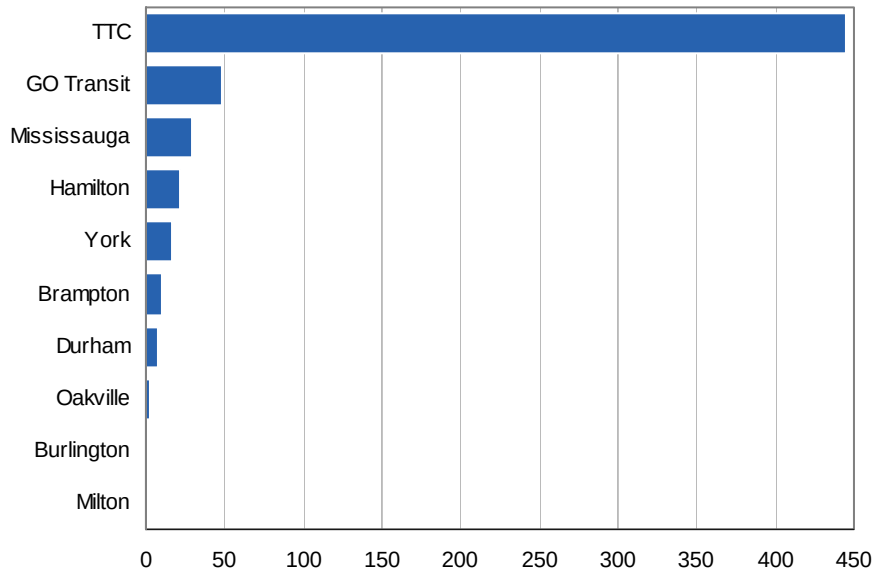
Growth prospects for the GTA are treated in the earlier RCCAO *Transportation Challenges* report, derived primarily from the highly acclaimed regional growth plan emanating from Ontario's *Places to Grow* Act.

Various studies have reached the conclusion that without serious enhancements to the entire transportation system, congestion levels and the costs of moving about the region can only be expected to increase significantly beyond what is presently viewed as unacceptable. Congestion is viewed as a serious impediment to both the regional economy and the liveability of the GTA.

The announcements made in the first half of 2007 were all motivated largely by widespread concensus on the need for meaningful, multi-level action to deal with the ever-increasing dimensions of regional gridlock. That emphasis is entirely transit-oriented.

In 2006, transit ridership in the GTA and Hamilton totalled more than 581 million trips, compared in Figure 4.1 by transit operator.

FIGURE 4.1 – 2006 TRANSIT RIDERSHIP BY OPERATOR (MILLIONS)



According to a recent *Metrolinx* publication:[10]

> Ten different transit systems operate in the region: four regional or municipal operators serving Toronto, Durham, York and Hamilton; five local agencies serving local municipalities in Peel and Halton; and GO Transit providing interregional service throughout the area. Transit use is not well-balanced among these systems. About 80 per cent of passengers are carried by the Toronto Transit Commission (TTC), 10 per cent are carried by GO Transit, and 10 per cent by the remaining eight systems.

Although ridership for many of these operators is quite low, it is important to keep in mind that actual transit use in the municipalities is higher because for centrally oriented travel, transit ridership is already included in the GO Transit figures. With growth in population expected to increase in the GTA and Hamilton by 100,000 persons annually to reach 8.6 million by 2031, *Metrolinx* describes the transportation challenges in the following manner:

> The TTC and GO Transit recover the highest ratio of operating costs through the fare box, with smaller systems requiring significantly higher levels of subsidy per passenger. This represents a financial challenge: the smaller systems are home to about 60 per cent of the region's current residents, and will be home to most new residents in the future.

The *Metrolinx* preliminary report confirms that daily transit use in the City of Toronto accounts for almost 25 percent of all travel whereas in the surrounding regions, it ranges from 4 to 8 percent. Combining the *Places to Grow* population and employment growth estimates and the committed network of road and transit improvements (referred to as the "business-as-usual" scenario), the report also includes projections which suggest that by 2031:

- GTA and Hamilton population will grow by 44 percent,
- employment will grow by 41 percent,
- total daily trips, by all modes, will grow by 44 percent, but
- although transit's share of morning peak period trips in the region is expected to remain relatively constant at 14 per cent,
- overall transit trips in the suburban municipalities would grow by a factor of four, and
- total daily transit trips will increase by some 45 percent.

The main conclusion is that "significant investment in transit capacity would be needed, merely to keep pace with demand".

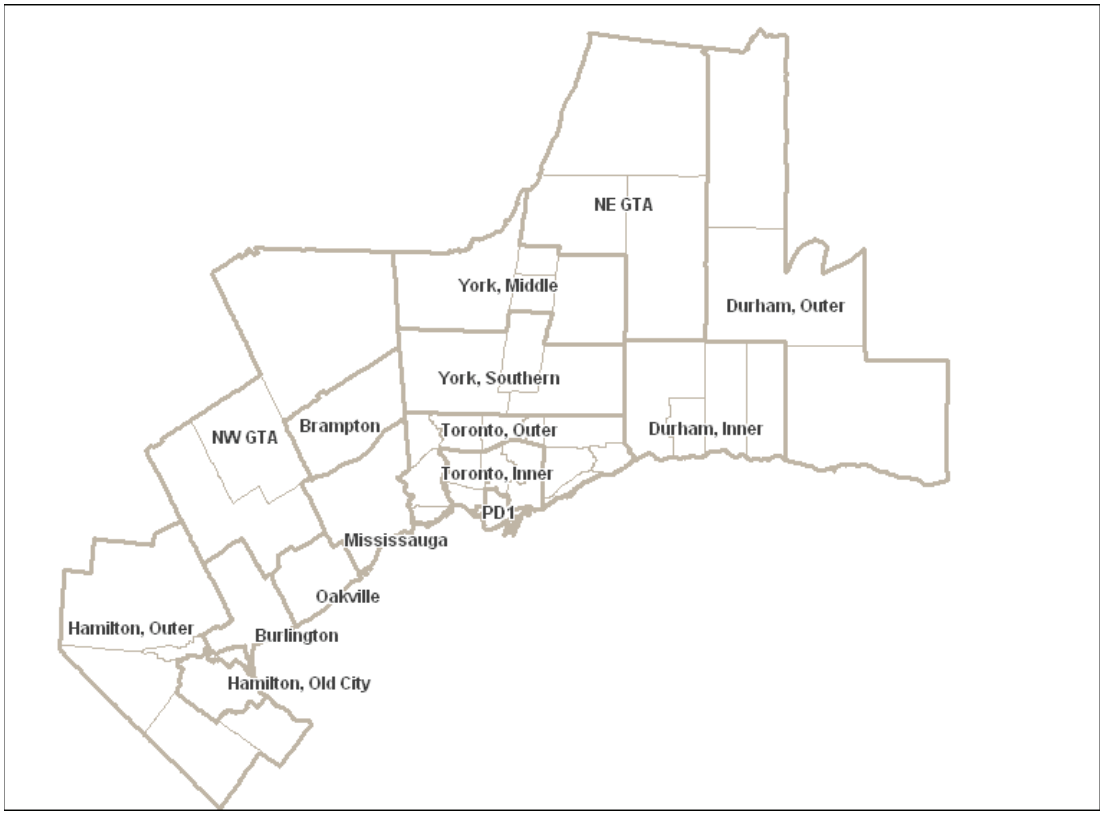
[10] Metrolinx, *Towards Sustainable Transportation*, Paper #1, Toronto: December 2007.

RECENT TRENDS

A technical appendix to this report presents a preliminary analysis of travel trends in the GTA-Hamilton Area over the last twenty-years.[11] The analysis is based on data from the *Transportation Tomorrow Survey* (TTS), a University of Toronto survey conducted every five years, that collects travel information for all trips made by persons 11 years of age or older during a 24-hour weekday period.[12]

Although a wide range of detailed statistics are considered in the technical report, in order to provide a context within which *Metrolinx*'s recent projections can be viewed, the relationship between changes in population and transit trips over the reported 20-year period is of some interest. Definitions of the zones for which the data have been assembled are provided in Figure 4.2.

FIGURE 4.2 – DEFINITION OF ANALYSIS AREAS

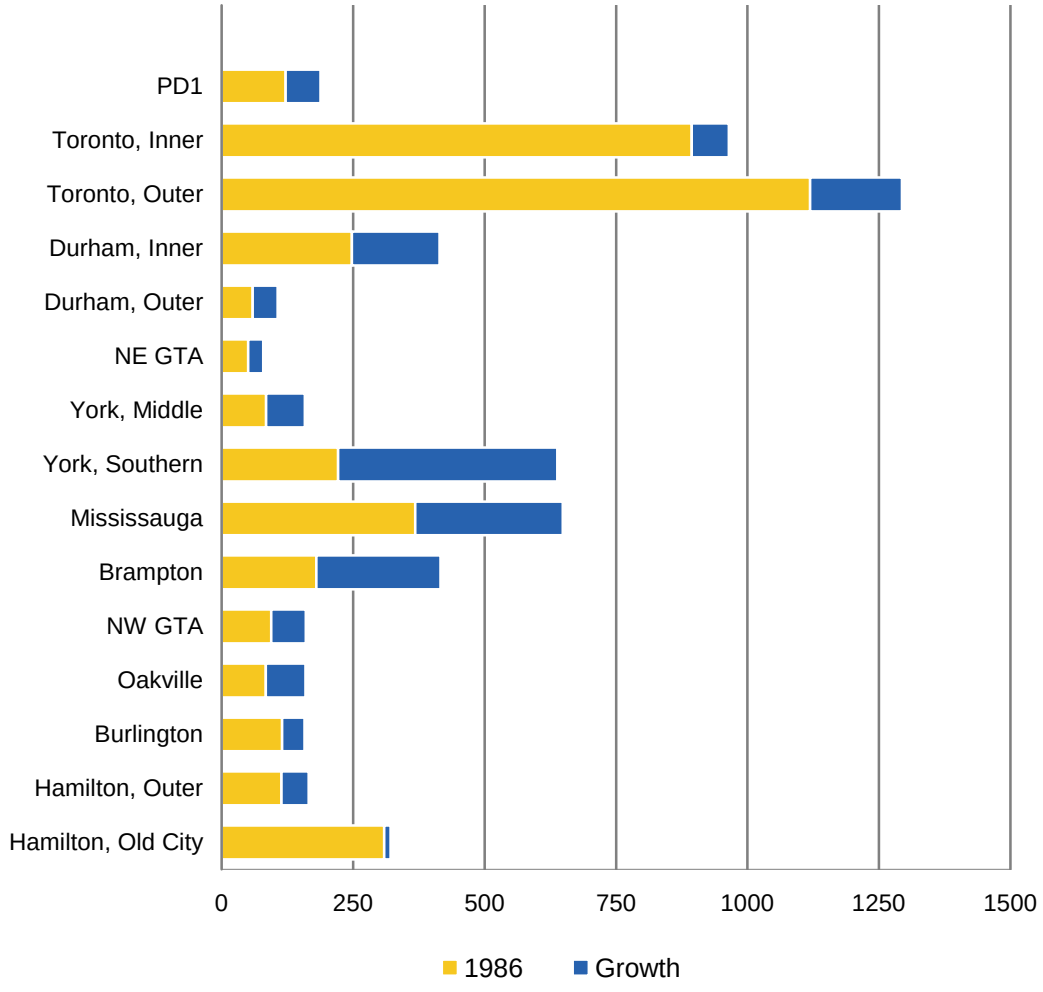


[11] Eric J. Miller, *Travel Trends in the Greater Toronto-Hamilton Area, 1986-2006: A Preliminary Analysis,* Toronto: 2008. This web –based appendix is available on www.GTATransportation.com.

[12] *Transportation Tomorrow Survey,* Toronto: University of Toronto Joint Program in Transportation, various years.

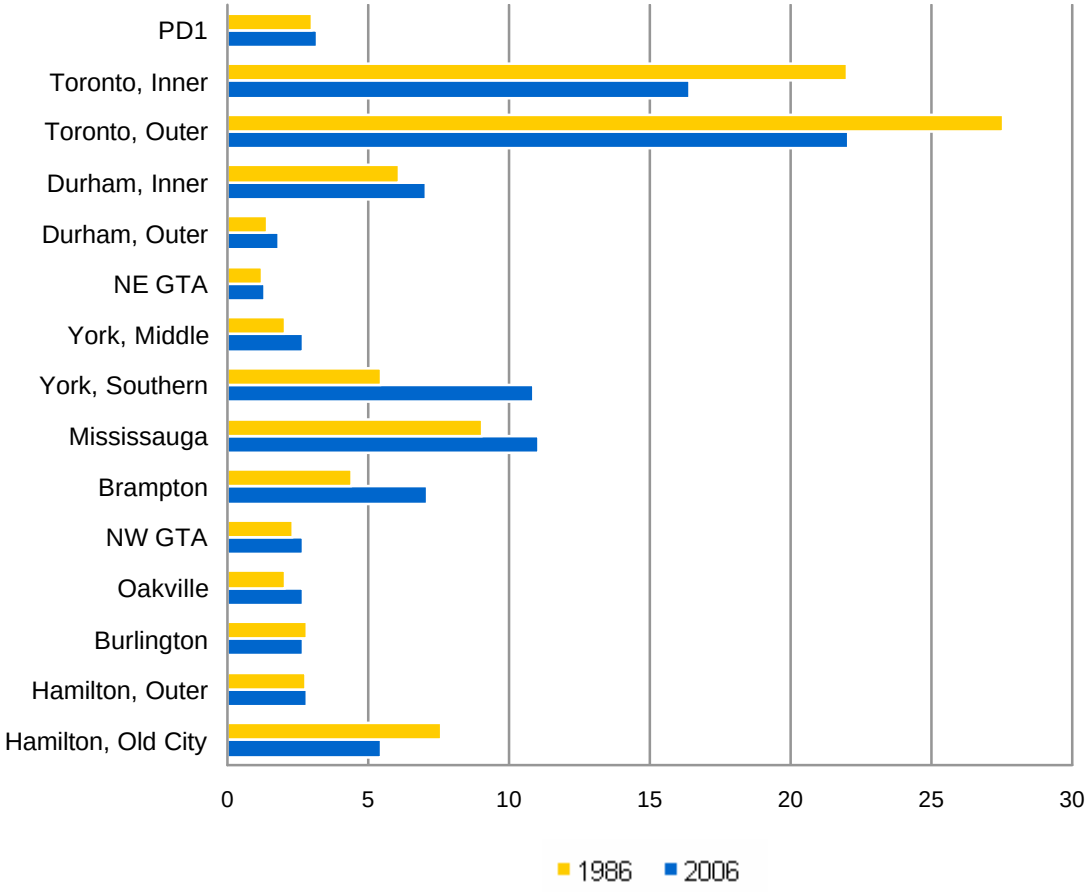
Figure 4.3, displays the growth in population for various areas within the GTA and Hamilton. Table 4.1 shows the 5-year average annual growth rates and the resulting change in shares of total GTA and Hamilton population is shown in Figure 4.4. These growth rates have been very high in much of the region, notably in southern York Region, Mississauga and Brampton. Hamilton has experienced very little growth and, indeed, declined marginally in population between 2001 and 2006.

FIGURE 4.3 – CHANGES IN GROWTH OF REGIONAL POPULATION 1986 – 2006 (1000S)



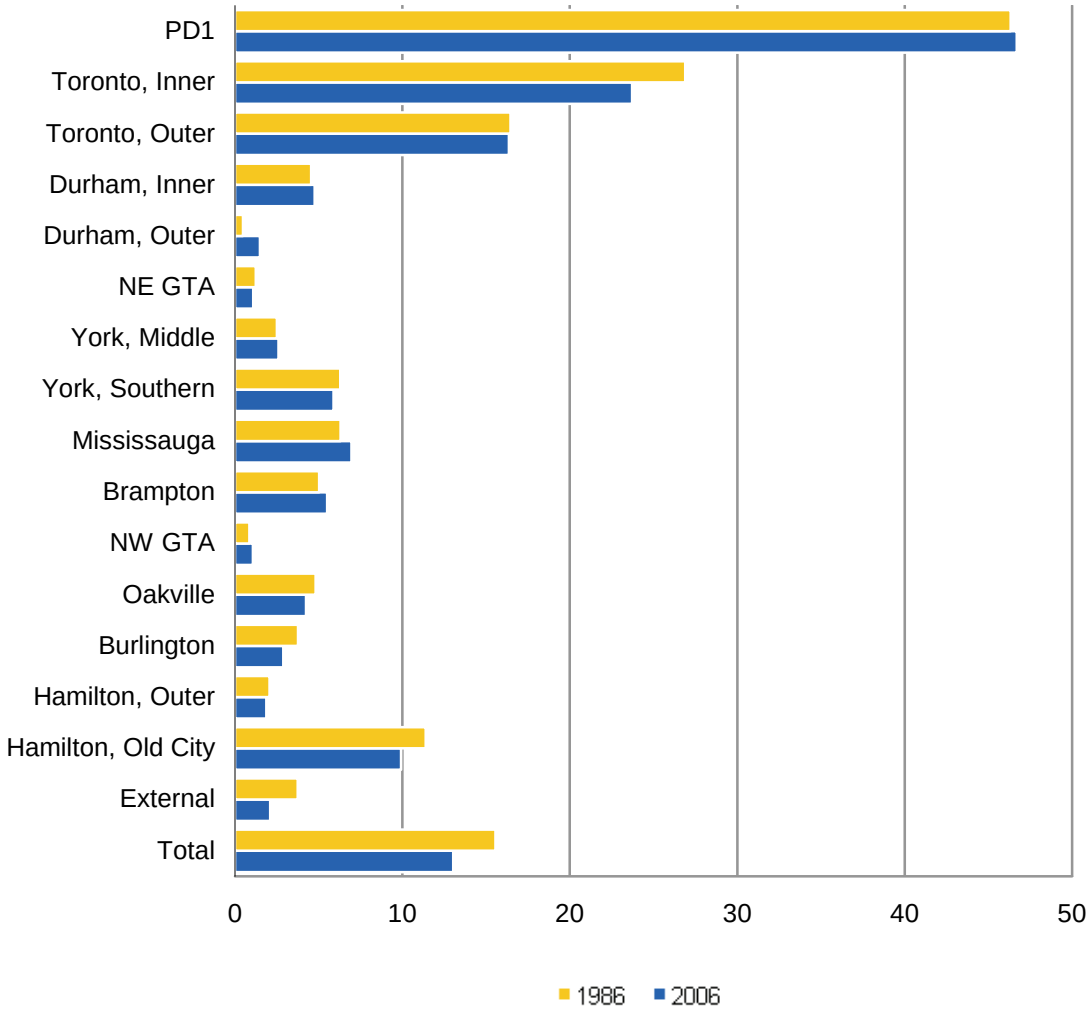
Area	Avg. 5-Year Percent Change			
	1986-1991	1991-1996	1996-2001	2001-2006
PD1	1.4	2.5	2.4	2.9
Toronto, Inner	0.8	0.3	0.3	0.1
Toronto, Outer	0.6	1.0	0.5	0.8
Durham, Inner	5.1	2.2	1.7	2.1
Durham, Outer	6.5	3.3	2.3	1.1
NE GTA	4.9	1.5	1.9	1.3
York, Middle	6.3	2.7	2.7	2.1
York, Southern	10.1	3.3	6.8	4.5
Mississauga	4.2	3.3	2.8	1.9
Brampton	5.8	2.0	4.5	6.6
NW GTA	1.1	1.8	2.9	5.7
Oakville	6.5	2.1	2.7	2.8
Burlington	2.0	1.2	2.2	1.2
Hamilton, Outer	2.3	2.3	2.3	1.0
Hamilton, Old City	0.5	0.2	0.5	-0.4
Total	2.5	1.6	1.9	1.8

FIGURE 4.4 –CHANGE IN POPULATION DISTRIBUTION 1986-2006 (PERCENT OF TOTAL)



As shown in Figure 4.5, from 1986 to 2006, transit mode shares generally declined, (with corresponding increases in automobile mode shares) across the GTA in most areas. The most recent TTS data do show very modest increases in transit mode shares from 2001 and 2006.

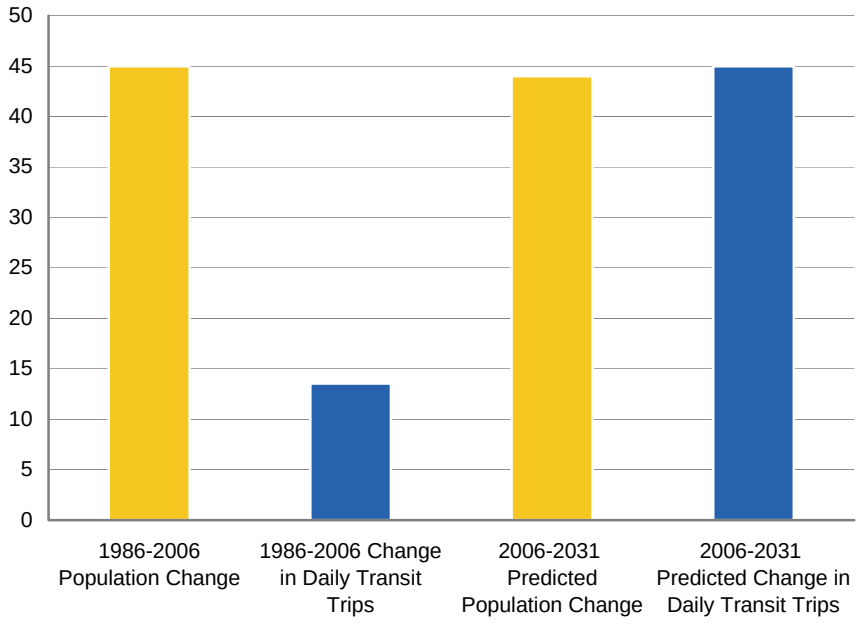
FIGURE 4.5 – ALL DAY TRANSIT MODE SHARES TO ALL DESTINATIONS 1986-2006 (PERCENT)



These mode split data illustrate the importance of urban form in the determination of transit mode shares. The Toronto Central Area stands out in terms of the travel market share. The technical appendix shows that in 2006, 30 percent of all weekday trips originating in Planning District 1 and 47 percent of all trips destined to PD1, respectively, were made by public transit. Obviously, the attractiveness of transit improves when appropriate urban form and high transit service levels combine to provide an attractive alternative to the auto-drive mode, especially in the face of significant roadway congestion.

However, as shown in Figure 4.6, an order of magnitude change in behaviour will be required to realize the previously noted prediction that growth in transit use (45 percent) will parallel the growth in population (44 percent) over the next 25 years or so.

FIGURE 4.6 – COMPARISON OF 1986-2006 OBSERVATIONS AND 2006-2031 PREDICTIONS OF TRANSIT USE (PERCENT)



5. regionally significant transit opportunities

DEFINING 'REGIONALLY SIGNIFICANT'

Toronto Transit City and *Moving Ontario Forward* include a large number of transit initiatives that, if implemented, can have a variety of impacts on improving the relative competitiveness of public transportation within the GTA. Some of these impacts will be more localized than others whereas some may have greater significance or potential from a region-wide point of view.

The objective of this study, however, is to develop a range of regionally significant GTA transportation solutions that are of sufficient interest to attract the attention of relevant agencies. In other words, the focus is on the kinds of transit improvements that are most appropriate for detailed consideration by the Province and *Metrolinx*, as opposed to local transit authorities.

Thus, for example, extension of the Scarborough RT from its present terminal at McCowan Avenue to Malvern (as proposed in *Toronto Transit City*) is likely to have significant impact on travel oriented to the Scarborough City Centre or downtown Toronto or, at least, increase opportunities for using transit for those demands. However, its regional significance is probably less than a major east-west LRT (or other technology) that improves connectivity between Mississauga's Transitway and the RT extension, as well as connectivity to downtown Toronto via existing subway and commuter rail services.

With regard to determining what is and what may not be regionally significant, two factors should be taken into account.

First, the emphasis on regional integration has long been couched in terms of facilitating travel by transit throughout the GTA, for example, by improved transit between say, Oakville and Pickering. In fact, however, all recent travel data show relatively little demand for this kind of travel. Increasingly, the commuter shed for many of the identified development nodes within the Provincial Growth Plan tends to be more localized. Thus, the real measure of benefits or effectiveness of new transit initiatives probably lies in increased opportunities for using transit within these markets.

Second, however measured, the benefits of transit improvements on a regional scale are still likely to be overwhelmed by transit travel within the City of Toronto, which now accounts for about 80 to 85 percent of total GTA transit trips. In other words, increased ridership outside of the City of Toronto is unlikely to loom large in relation to the total base of existing travel by transit.

Numerous studies show that transit use (known as mode split) is considerably higher as one approaches downtown Toronto than in many of the outlying jurisdictions for reasons that are both historical and obvious. From the standpoint of this study, therefore, the term 'regionally significant' can be interpreted as increasing opportunities for using transit as an alternative to the automobile in those areas where mode split is now quite low. It means, for example, improving transit opportunities for all travel originating in Brampton, or other areas of the GTA where transit ridership has not kept pace with increasing population and development.

REGIONAL OPPORTUNITIES

By definition, almost all expansion and/or extension of commuter rail service probably falls into the category of enhanced regional opportunities. The vast majority of home-based commuter rail trips already involve cross-boundary travel inasmuch as they originate in one regional municipality, such as Halton or York, and terminate in another, namely the City of Toronto.[13] The unanswered question relates to the priority of commuter rail expansion from the standpoint of available investment relative to other regional initiatives.

Other regional opportunities for improved transit service cater to a different and, perhaps, wider variety of travel needs. An examination of the various recent federal, provincial, and municipal announcements leads to a number of potentially significant regional initiatives, summarized in simplified form in Table 5.1.

TABLE 5.1 – POTENTIAL REGIONAL OPPORTUNITIES
(EXCLUDING COMMUTER RAIL)

East- West Corridors	**Notes**
Mississauga Transitway – Eglinton LRT - Scarborough RT – RT Extension to Malvern*	3 different technologies & multiple transfers Eglinton already has very high ridership The "Golden Mile" segment is ripe for redevelopment and intensification
Vaughan to Downsview Subway- Downsview to Yonge Link Sheppard Subway- Sheppard LRT to Malvern**	A link between Downsview and Yonge is essential for connectivity 3 different technologies & multiple transfers
Finch Hydro Corridor Busway**	Frequently proposed Should be open to *any* bus service Connects to major north-south subway and commuter rail services
North - South Corridors	
Brampton AcceleRide and Hurontario Higher Order Transit*	Different technologies being considered Opportunities for integration with Mississauga Transitway

[13] Home-based travel originates or terminates at home. Thus a PM peak period trip home from downtown Toronto to Oakville can be defined as a home-based trip. It is typically the return portion of an AM trip that started at home.

Extension of the Yonge subway from Finch to Langstaff*	The most significant transit corridor in the GTA Already operates at capacity in peak periods Requires modernization of train control, as well as station enhancements
Other Opportunities	
Toronto Bus Terminal**	Relocation of an integrated (public and private) intercity bus terminal to connect directly with Union Station
Union Station – Pearson Airport Link*	No public funds required Airport is critical for the GTA economy Terms of reference for the EA have been stalled since October 2006
Enhanced Queen street car service with an underground section in downtown Toronto**	King & Queen streetcar service carry more than 100,000 riders daily Some underground structures are in place Does not fall within the category of regionally significant transit

* Included in *Toronto Transit City* and/or *Moving Ontario 2020*
**NOT Included in *Toronto Transit City* and/or *Moving Ontario 2020*

Expansion of regional commuter rail services is excluded for the reasons noted above. The following sections treat the key elements of these potentially significant regional transit opportunities.

EGLINTON CORRIDOR

The Eglinton Corridor refers to the Mississauga Transitway – Eglinton LRT - Scarborough RT to Malvern east-west route.

Within the City of Toronto, Eglinton Avenue, as far back as 1975, has been recognized as a potentially significant transit opportunity to encourage land use intensification and generate high transit ridership. In fact, construction of the Eglinton West subway was initiated in 1995 and subsequently cancelled by a different provincial government, almost coincident with termination of the provincial government's Municipal Transit Program. Presently, bus service on Eglinton Avenue carries some of the highest volumes of surface transit riders in the City of Toronto. A 1975 study stated the following:[14]

> Probably the key factor that will influence the effectiveness of future transit investments is the construction of a major transit facility in an east-west direction to tie together existing and committed major transit facilities to form a comprehensive network. The viability of such an east-west facility will depend on the emergence of a series of activity nodes along the route of this facility.
>
> The preferred route for a major east-west transit facility, from among all the transportation alternatives tested, would be located in the Eglinton corridor. Viable transit service along this route would be enhanced by creation of high density concentrations at the points of highest transit accessibility, namely, where the Eglinton facility intersects other major subways, ICTS (now the Scarborough RT) and GO Transit routes.

[14] *Choices for the Future*, Toronto: Metropolitan Toronto Transportation Review, 1975

This line is considered to be highly desirable because,

- it ties together other elements of the transit system that emanate from the Central Area,
- it supports the concept of decentralization by connecting a number of existing and potential activity centres along its route, and
- because it provides a logical link with east-west trunk transit lines serving second tier development east and west of Metropolitan Toronto.

If we are to improve the attractiveness of transit as an alternative to the automobile for other than centrally oriented work trips, the Eglinton line is one of the most important single transit facilities to be considered by Metro.

Extracting the main points from a recent unpublished paper by Ed Levy:

The Eglinton line is perhaps the single most important missing piece of a viable central rapid transit network. It is the only route that crosses virtually the entire city, and could have direct links with the Mississauga Busway in the west and Kingston Road and Durham in the east. Moreover, it would also intersect the existing subway at three locations, at least four GO Transit rail lines, dozens of bus lines on arterial roads, and several other proposed "Transit City" LRT routes.

It would also directly serve … the fast growing Eglinton-Yonge sub-centre (designated one of three key growth areas along with downtown and midtown Toronto), the Don Mills area and the Science Centre, the multi-modal Kennedy-Eglinton transit node, and others. This facility would function not only as one of the City's key transit distributors, but also as a well-used primary transit corridor in its own right.

The Eglinton LRT or "pre-metro" would be an important prerequisite for achieving the kind of modal split shift advocated by so many for so long.

A schematic representation of this corridor is shown in Figure 5.1. Connecting the Mississauga Transitway in the West and the Scarborough RT in the East, creates a continuous transit corridor across Mississauga and most of the City of Toronto that intersects existing subway, RT, and commuter rail services, thereby significantly improving the potential for faster transit service for a variety of GTA trips.[15]

Four points should be noted:

1) As suggested in *Toronto Transit City*, the central 10 km or so of this route would be constructed underground since dedicated surface lanes for LRT within this segment would be impractical.

2) Though the corridor itself is continuous, different technologies are envisaged or presently in use that would require two or more transfers.

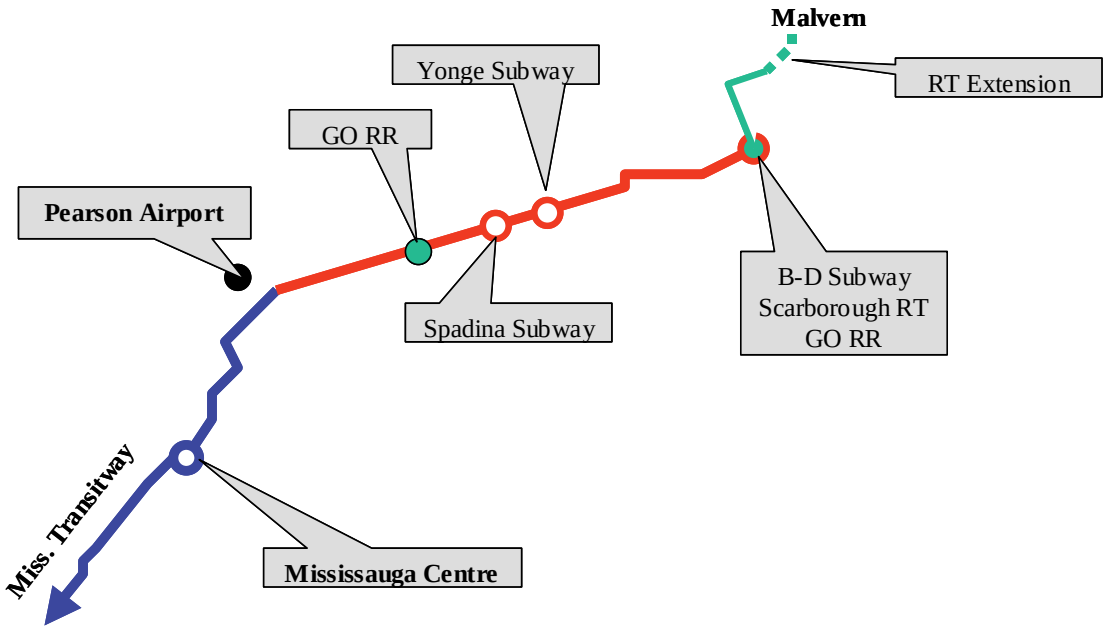
3) Within the City, anticipated volumes probably justify a subway or technology with subway capacity. For LRT technology, that capacity

[15] RT refers to the Scarborough RT. Based on *The Scarborough RT Strategic Planning Study*, at its meeting of August 2006, the TTC approved recommendations to replace the now aging existing vehicles with new generation vehicles similar to those now used in Vancouver, and to make the infrastructure improvements needed to operate these more modern, longer RT cars.

requirement probably exceeds volumes that could be handled by relatively short trains sharing street space with automobile and other traffic.

4) An examination of Eglinton Avenue west of Keele Street does raise the question as to whether BRT might be a more suitable and cost effective technology alternative, particularly since it would permit continuous BRT service from the Mississauga Transitway to a rail/bus interface near Keele Street.

FIGURE 5.1 – SCHEMATIC DIAGRAM OF AN EGLINTON-BASED RAPID TRANSIT CORRIDOR



In other words, full rapid transit seems justified within the City of Toronto for the Eglinton corridor, at least between Kennedy Road and Keele Street, service that can be achieved in three basic ways, namely:

1) Longer LRT train service using fully dedicated elevated structures and tunnels,

2) A new subway consistent with the original concept for the Eglinton West subway, or

3) Extension of the Scarborough RT from its present terminal at Kennedy Road.

Although the Scarborough RT technology was originally designed with Eglinton Avenue in mind, within Toronto, there has always been a certain degree of scepticism associated with the technology, despite successful application in a number of jurisdictions, notably in Vancouver, where it is known as the Skytrain.

Nevertheless, automated train control permits high frequency service. The relatively small station footprint offers a higher likelihood of construction as an elevated structure within eastern and western segments of the Eglinton corridor. Since elevated structures are less costly than tunnels, an Eglinton RT would have the advantage of lower total capital cost than either fully protected LRT or subway and would, of course, provide a transfer free service to the ultimate terminal of an extended RT in Scarborough.

All three options would involve a well-integrated transfer with the Mississauga Transitway. What is really required are objective preliminary designs and cost estimates that can be used in a comparison that focuses on ease of implementation and service benefits. Moreover, the option of extending the Mississauga Transitway along Eglinton Avenue to about Keele Street presents an interesting opportunity for *Metrolinx* to demonstrate truly inter-regional transit integration.

SHEPPARD CORRIDOR

Construction of the Sheppard subway was initiated almost simultaneously with construction of the Eglinton West subway in the mid 1990s. As a result of changes in provincial funding, the Eglinton subway was cancelled and the first phase of the Sheppard subway (recommended by the Planning Department of former Metropolitan Toronto to terminate at Victoria Park) was shortened to terminate at Don Mills Road. The intention has always been to extend the Sheppard subway to the Scarborough City Centre, an environmental assessment of which has already been completed. In fact, in 2001, the TTC formally designated completion of this subway and extension of the Spadina subway to York University as its two highest capital priorities.

Toronto Transit City includes LRT service from Don Mills Road to Morningside Drive. Some observers, including the Infrastructure Committee of the Toronto Board of Trade, have identified rapid transit as an important missing link needed to connect the Sheppard/Yonge subway station with the Downsview station of the Spadina subway.

The practical feasibility of constructing an LRT facility on Sheppard Avenue east of Don Mills is reasonably high. However, as in the case of the Scarborough RT, a transfer between the LRT service and the relatively short Sheppard subway would be required for many passengers. (Don Mills Road is unlikely to become a major travel destination.)

For these reasons, a continuous LRT route from eastern Scarborough that intersects both the Yonge and Spadina subways has the potential to significantly enhance regional transit accessibility. Such service would involve:

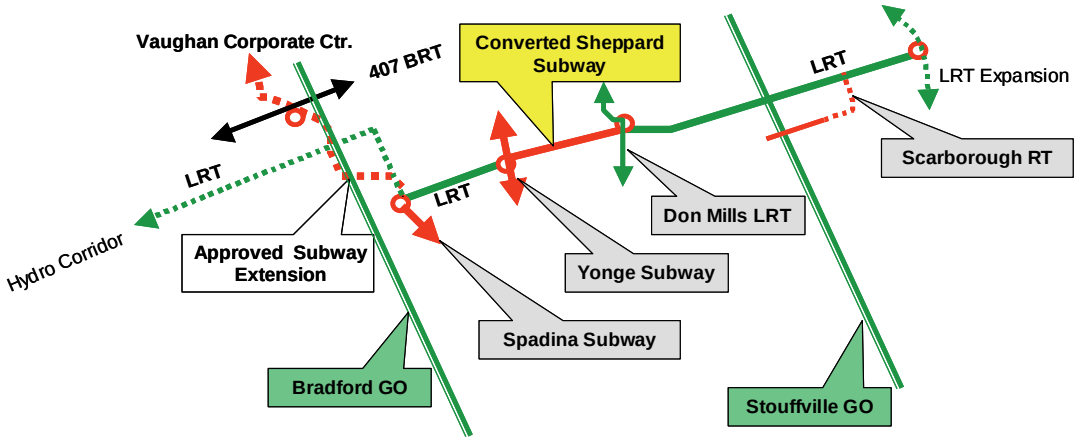
1) New LRT construction between Morningside Avenue and the Sheppard subway terminal at Don Mills Road,

2) Reconfiguration of existing Sheppard subway stations to accommodate low-floor LRT technology (achieved by raising track elevations in stations and approach zones), and

3) An LRT extension west of Yonge Street to the Downsview subway station.

Two variants of this concept, illustrated schematically in Figure 5.2, are also of some interest.

FIGURE 5.2 – THE SHEPPARD LRT CONCEPT



First, the Sheppard LRT as 'reconstituted' above, could be extended to York University and the Vaughan Corporate Centre as an alternative to the subway extension. Such service could be provided on fully dedicated facilities on an alignment that follows Dufferin Street and the Finch hydro corridor, probably at greatly reduced capital investment. In addition, users from Vaughan and York University would have the option of using either the Spadina or Yonge subways, or the GO Transit Bradford commuter rail service. (The Spadina subway extension, however, is probably too far along to consider a major change of this nature.)

Second, recognizing the political 'capital' and planning already invested in the concept of a subway to York University and the Vaughan Corporate Centre, the Sheppard LRT

could be extended to improve transit accessibility in the northwest area of Toronto via Dufferin Street and the Finch Hydro corridor. In addition to the regional transit opportunities that derive from a continuous LRT from Scarborough to Downsview (or beyond), transit accessibility would be greatly increased within the City of Toronto itself.

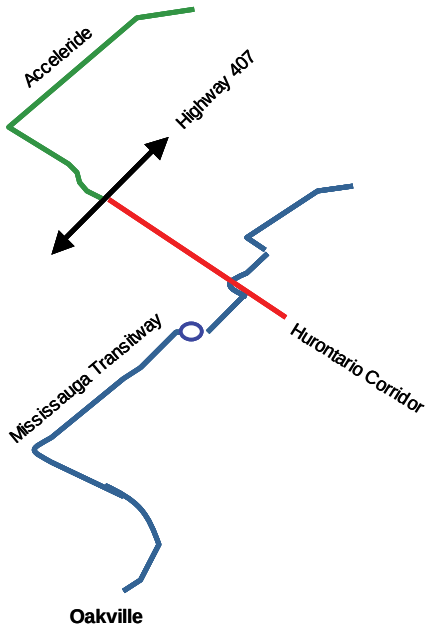
To be clear, numerous arguments will be presented as to why it is not possible to convert the existing Sheppard subway to LRT. Naysayers notwithstanding, the fact is that where there is a will, there is usually a way.

BRAMPTON-HURONTARIO-MISSISSAUGA NETWORK

In Brampton, AcceleRide involves reserved bus lanes intended to serve as a prelude to higher order transit on key east-west and north-south corridors. Mississauga is now in the process of examining transit opportunities within the Hurontario Street corridor (included in *MoveOntario 2020* as LRT). Both AcceleRide and the Mississauga Transitway, initiated as a concept some 30 years ago, were included in the joint funding announcement made by the federal and provincial governments in March 2007.

There is obviously merit in integrating the AcceleRide and the Hurontario transit routes with the Mississauga Transitway to form a network of transit opportunities in and between Brampton and Mississauga. As shown in Figure 5.3, this combination offers good connectivity to Halton and the City of Toronto via the previously treated Eglinton corridor, connectivity that would be enhanced by the proposed GO Transit BRT service in the Highway 407 corridor.

FIGURE 5.3 – THE BRAMPTON-HURONTARIO-MISSISSAUGA NETWORK



Inasmuch as Hurontario is now assumed to be a candidate for LRT whereas both AcceleRide and the Mississauga Transitway involve BRT, some reconciliation between the two technologies would be desirable in order to offer more transfer-free service for transit travel within this rapidly growing area of the GTA. Figure 5.4 shows selected photographs of the Hurontario corridor.

FIGURE 5.4 SELECTED CROSS SECTIONS IN THE HURONTARIO CORRIDOR

SOUTH OF THE QEW
ADEQUATE WIDTH
LOCAL RIDERSHIP POTENTIAL

NORTH OF THE QEW
MORE LAND USE DENSITY

NORTH OF DUNDAS
DEVELOPMENT POTENTIAL

NORTH OF CENTRAL PARKWAY
GOOD RIDERSHIP POTENTIAL

BETWEEN 403 AND 401
DEVELOPMENT POTENTIAL
BRT TERRITORY

ENTERING BRAMPTON
EXISTING STREET ENHANCEMENTS

BRAMPTON
LIMITED RIGHT OF WAY

BRAMPTON
TOO NARROW FOR LRT

YONGE SUBWAY EXTENSION

The Yonge subway carries the highest volumes of all transit facilities in the GTA. Held up in its early years as evidence of the ability to divert automobile users to transit, as well as evidence of the strong correlation between transportation and land use within the City of Toronto, its regional importance transcends Toronto's municipal boundary. There is little doubt that the Yonge Street subway continues to be the single most important regional transit facility in the GTA. During the morning peak period, for example, most seats are already occupied at the Finch terminal. A very large number of those users begin their journey in York Region. As a result, extending the subway into the Region of York would benefit a large number of current users, as well as new users from rapidly emerging new development.

Extending the subway from the Finch terminal to Highway 7, however, will undoubtedly generate significant additional ridership that will exceed, by far, present subway capacity. Overcrowding of trains is already severe and some of the main stations are not able to accommodate larger numbers of riders without substantial modification. In short, as part and parcel of extending the subway, increased frequency of service is essential in order to:

- Accommodate higher volumes, and
- Reduce the build up of passengers within stations between trains.

Yonge subway service is presently restricted to about 28 trains per hour, largely due to turnaround requirements and the capabilities of the existing train control system. That system uses electro-mechanical equipment which is more than half a century old. It is based on 'fixed blocks' or segments of track, entry to which is controlled by wayside (beside the track) traffic signals. With this system of train control, operators' actions are dictated by strict procedures governed primarily by the colour aspect indicated. The signal display itself is controlled by the location of the preceding train, regardless of whether that train is stopped, accelerating, or braking. Once the following train passes the signal, the driver receives no further information until the next signal is visible.

Train frequencies can be increased by the use of cab signals in which the driver has continuous information of what lies ahead, still based, however, on fixed signal blocks. Newer train control systems, such as are used on the Scarborough RT, permit even higher frequencies because, instead of fixed blocks, 'moving blocks' are used to ensure safe stopping distances between trains. In Bombardier's Communication Based Train Control (CBTC) system, for example, the position of one train is detected by radio transmission and used to regulate the speed of the following train. 'Moving block' thus improves a variety of subway performance capabilities. Theoretically, it is possible for subways to operate every 90 seconds (40 trains per hour).

The main point is simply that extending the Yonge subway north from Finch is really only practical if the train control system for the entire Yonge-University-Spadina subway is also modernized by replacing the existing fixed block system with a modern train control system. The capital cost of this change (of the order of $500 million) then becomes a significant component of the total capital cost of extending the subway. *Even without a subway extension, modernization of the Yonge subway train control system to increase frequency of service and capacity for existing users is long overdue.*

There are, of course, other alternatives for expanding capacity between Finch and central York Region, including increased service frequency on existing commuter rail routes, notably, the Richmond Hill service, as well as construction of the bus rapid transit facility between the Finch terminal of the Yonge subway and Highway 7, as already promised in the joint Federal/Provincial announcement of March 2007. As a centre lane, exclusive bus operation, this VIVA BRT route could eventually be converted to LRT or subway at a later date. Extension of the subway to Highway 7, however, would likely eliminate the need for exclusive bus lanes on Yonge Street.

FINCH HYDRO CORRIDOR

Long touted as an opportunity for a major east-west transit facility, use of the Finch hydro corridor for transit has been proposed for advanced rapid transit (similar to the Scarborough RT) as early as 1972. In fact, some portion of this corridor is a component of the proposed BRT service from the Downsview subway station to York University.

Although the availability of such a right-of-way has intrinsic appeal, whatever might be formally proposed within this corridor would be subject to considerable community opposition from adjacent land owners. There is also a major question as to whether the corridor itself would generate very many transit trips, given that it is somewhat off-centre from the major arterial road where actual development might occur.

Nevertheless, a busway within the hydro corridor (illustrated in Figure 5.5) could provide rapid connections with the intersecting subways (both the Yonge subway and the extended Spadina subway), as well as the north-south Stouffville, Richmond Hill, and Bradford commuter rail services, all of which have seen extensive increases in the frequency of fast service to downtown Toronto.

Thus, while the corridor may not generate substantial new transit ridership from nearby areas, a variety of public and private regional bus services would be able to expand opportunities for transit service to a wider variety of destinations within the City of Toronto, and from origins in Durham, York, and Peel, as well.

FIGURE 5.5 –FINCH HYDRO CORRIDOR

The elements of BRT within the Finch hydro corridor boil down to an exclusive two-lane roadway with transit-priority signalized intersections at every major north-south arterial. In some cases, grade separation with these major arterials (either underpasses or over-passes) could be easily implemented with minimal disruption to existing traffic (including north-south bus routes), as evidenced by construction of a recent highway overpass in Ottawa.

In addition, the provision of park-and-ride lots at major intersections could increase the potential for diverting significant numbers of auto users to transit and could also generate additional revenue.

At this stage, however, the concept of an east-west bus connector facility within the hydro corridor is not sufficiently developed to be able to recommend this route as a major inter-regional transit opportunity compared, for example, to either the Eglinton or Sheppard corridors. Nevertheless, at minimal cost, it would be prudent to protect a right-of-way throughout the Finch hydro corridor for future transit applications, including transit-oriented parking facilities.

NEW INTERCITY BUS TERMINAL

Intercity buses now use what is acknowledged as a somewhat poorly located bus terminal in downtown Toronto. Presently, there is no easy connection, particularly for passengers with luggage, to Toronto's subway system, VIA Rail services at Union Station, or Pearson International Airport. Years of discussion that parallel years of plans and announcements regarding renovation of Union Station itself have yielded no action with respect to building a major new inter-city bus terminal close to Union Station.

At present, there is also considerable controversy regarding the use of the present bus terminal by private bus companies. According to the Ontario Motor Coach Association, the lack of terminal capacity forces private buses to park on local streets where they regularly receive City parking tickets.

Every controversy, of course, has at least two sides. The TTC, which owns the terminal, argues that private companies choose to park their buses on local streets because they are unwilling to pay platform fees within the terminal property.

Nevertheless, the current practice is yet another example of inter-agency rivalries within Toronto that trump the public interest in having truly integrated inter-regional transit service.

The value of relocating the intercity bus terminal is obvious. The attractiveness of VIA Rail for intercity travel would clearly be enhanced by the close proximity of bus services to a wide variety of destinations within the GTA, GO Transit commuter bus and rail services, and, of course, the entire TTC network of subway, bus and streetcar routes.

Given general statements by all levels of government for public-private, partnerships in the provision of public transportation, a well located bus terminal that facilitates connections between public transit services and privately operated bus services falls into the category of the now colloquial 'no brainer'.

UNION STATION-PEARSON AIRPORT LINK

In November 2003, the former federal Minister of Transport announced plans for new rapid transit service between Union Station and Pearson Airport. The announcement was based on detailed analyses of costs and investment grade traffic forecasts that secured financial support from the private investment community as an economically viable operation.

The main appeal of the planned service is quick and reliable access to the downtown core. Named *Blue22*, the service was expected to operate daily, every fifteen minutes, thereby eliminating about 1.5 million car trips annually, delaying the need for more airport parking, and enhancing the attractiveness of Toronto for business, tourist, and other travel.

Expected to be opened by 2008, the Minister announced that the Union Pearson AirLink Group had been selected to build, operate, and maintain this new service using refurbished, self-propelled rail diesel vehicles. Part of the project involves construction of a direct connection between the existing railway corridor (in which GO Transit's Georgetown commuter rail service now operates) and Pearson Airport's new Terminal 1.

Within the airport proper, the federal government had already funded infrastructure additions needed for direct train access to Terminal 1. All further infrastructure investment is the responsibilty of the Union-Pearson AirLink Group. In this regard, it is important to emphasize that no further public funding is anticipated and all financial risks are to be borne by the consortium.

In other words, all future costs of implementing this service are to be borne entirely by users and the private sector. No public funding beyond what has already been incurred in studies, design, and infrastructure improvements within the airport property itself is envisaged.

Under an agreement with Transport Canada, the Union-Pearson AirLink Group is required to:

- design and build the necessary infrastructure for a rail connection between the Georgetown commuter rail corridor and Terminal 1,
- acquire an adequate fleet of specially designed, self-propelled, multiple unit diesel trains,
- operate service in both directions every 15 to 20 minutes,
- be responsible for all vehicle maintenance,
- pay access fees both to GO Transit for the use of existing railway infrastructure and to the Greater Toronto Airports Authority (GTAA), and

- finance all capital, operating, and maintenance expenses through fare revenues.

The design concept envisages closing certain through streets in the Weston area of Toronto because of increased train frequencies (including expanded GO commuter rail service). Community opposition subsequently led to a decision to proceed with a full Individual Environmental Assessment of the project.

In accordance with environmental legislation, terms of reference for this assessment were prepared and submitted to the Ontario Minister of the Environment for approval in October 2006. Well over a year later, no decision on these terms of reference has been made.

Notwithstanding frequently heard complaints that Toronto is one of the few large cities of the world that does not provide good transit access to the airport, and ignoring the contribution that the airport makes to economic development within the entire GTA, at this time, the issue is not necessarily whether the project should or should not be approved.

The issue is that some decision must be made soon so that, in the event *Blue 22* is not implemented, other alternatives for improved transit access to the airport can be developed. At some point, a decision must be made. Far more than sufficient time has passed for the Ontario government to exercise decisiveness on this matter by providing the necessary 'go-ahead' for completion of the EA.

6. potential benefits and opportunities

APPROACH

The primary objective of improving the transit service, of course, is to increase ridership and reduce dependence on private automobiles. There is a basic conundrum, however, because no significant increases in transit use can be expected unless better transit opportunities are provided, but improved opportunities do not guarantee higher ridership. In other words, improvements in transit service are a necessary, but not sufficient condition for reaching the goal of reduced car dependence.

Ridership increases from improved transit involve two basic elements -- retention of those who already use transit and diversion of automobile users to transit. To some extent, the retention aspect of transit planning has not received as much attention as the focus on making transit sufficiently competitive so as to divert travellers from private cars to transit.

Retention of present market or modal shares may be as difficult as diverting individuals from their cars. With increasingly overcrowded conditions and reduced reliability attributable to the growing gap between population growth and transit service expansion, more and more individuals who use transit today dream of driving tomorrow.

For those who have a choice, diversion from automobile to transit is largely dependent upon relative travel time and cost. Setting aside the issue of who actually pays in the case of those who receive car allowances or tax benefits, the cost differential invariably favours transit. For some trips, notably long distance commuter rail and accessible rapid transit, transit also offers travel time advantages. However, for most travel, transit takes longer.

For the individual who chooses to drive 25 minutes and pay $20 to park rather than travel 55 minutes and pay $5.50 for transit, the question becomes how much transit travel time must be reduced to alter that choice. Answering such questions has been the main pre-occupation of those who develop transportation demand models for the last half-century. As transit travel times improve relative to the automobile, it is clear that diversions to transit will occur. How much travel times need to be improved relative to the automobile and how many automobile users might shift to transit is less clear.[16]

[16] There is a related analogy that pertains to air travel. Toronto's airport now loses trans-border traffic (Canada-U.S.) to Buffalo's airport where access to low cost air carriers and much lower federal government taxes offer significant cost advantages. These advantages, however, are realized at the expense of longer road travel time and lengthy waiting time at border crossings.

Despite this uncertainty, transit travel times are very important. In almost every transportation benefit-cost analysis, benefits are defined as savings in user costs, of which travel time is the single most important element.[17]

Differences in travel time, therefore, are associated very directly with any measure of benefits. This measure drives the analysis of benefits in this study. It is comprised of two components.

First, for those who already use transit, a comparison of transit travel times for an improved transit network with the existing system serves as one indicator of *direct* benefits. Since these users are now using transit, however, savings in time associated with system expansion may be relatively small. In other words, transit travel times may already be sufficiently competitive.

Second, for all other trips, a comparison of transit travel times for an improved transit network with the existing system serves as an indicator of *potential* benefits. In this case, a simple example illustrates the point. Figure 6.1 shows the population catchment for transit travel, by time, for a particular area. It compares what exists with a major transit improvement (such as construction of the Spadina subway extension to the Vaughan Corporate Centre). The diagram does not portray ridership but it does show that whereas about 125,000 trips could be made by transit in less than 45 minutes on the existing service, the improvement provides an *opportunity* for almost 400,000 trips to be made by transit within the same time interval.

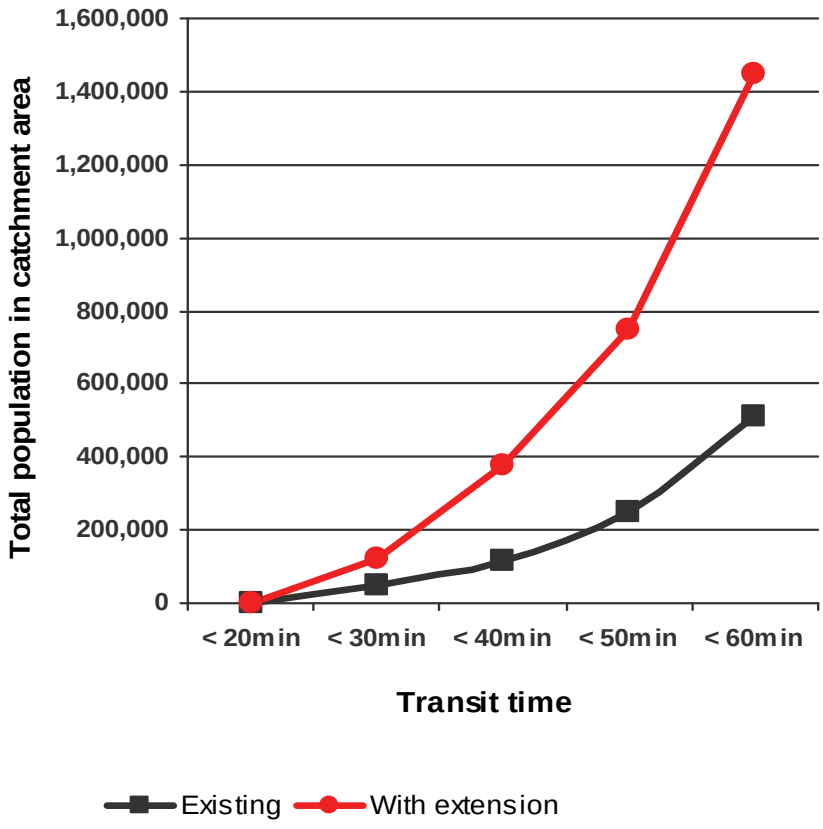
Whether those opportunities are actually taken advantage of depends upon a variety of other factors, the most important being the relative times and costs of automobile and transit travel. The comparison, however, does provide a measure of potential benefit.

In this approach, there is one important caveat. Because transit travel within the City of Toronto dominates transit travel in the GTA (80 to 85 percent of all trips), as noted in Chapter 5, increases in total potential transit benefits may not appear significant for any particular set of transit initiatives simply because the change in transit opportunities may still be relatively small in relation to what already exists.

For this reason, the following section illustrates potential transit benefits from the standpoint of specific representative areas within the GTA.

[17] The concept of benefit-cost analysis was developed by the U.S. Army Corps of Engineers for the evaluation of water resource projects and, subsequently, by the American Association of State Highway Officials for assessing road improvements.

FIGURE 6.1 – THE CONCEPT OF TRANSIT OPPORTUNITY



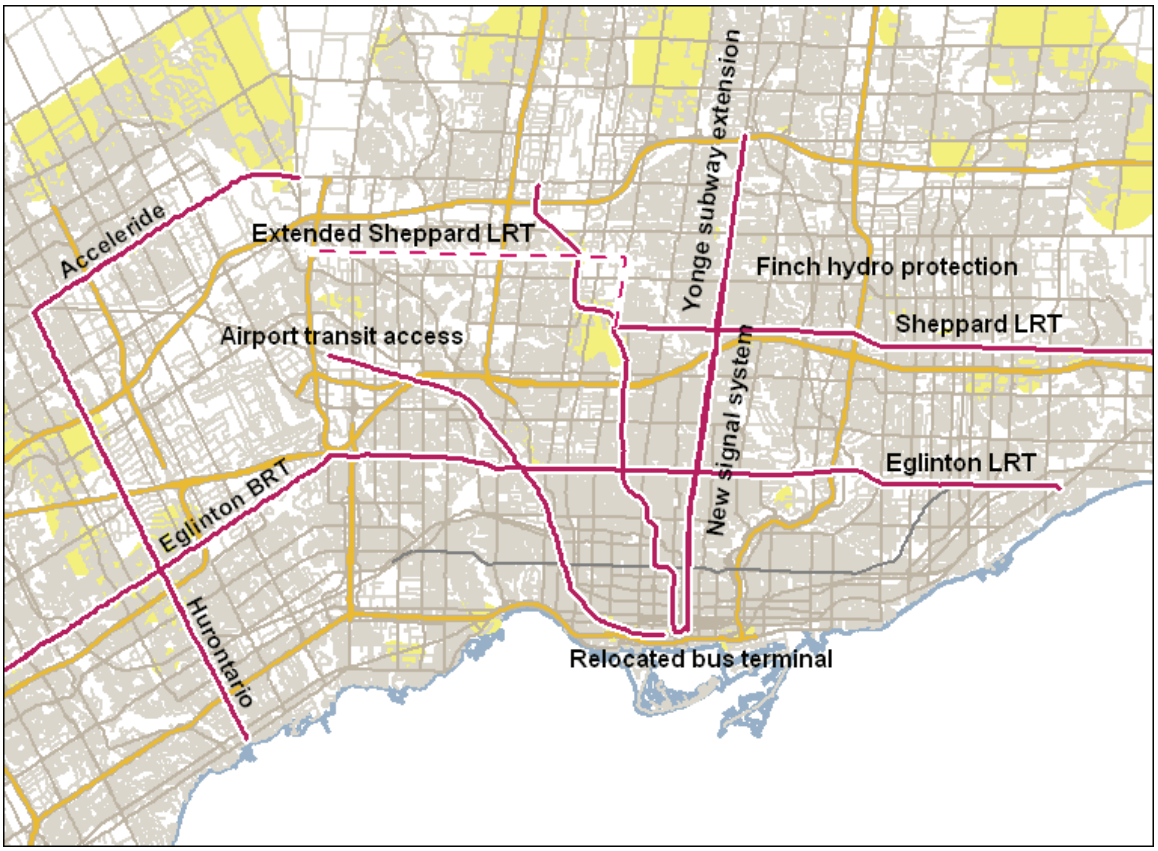
BASIC ASSUMPTIONS

The sub-GTA area results presented below compare direct and potential transit travel time saving opportunities for two transit networks. The first is the system of major transit services that essentially existed in 2001. The second system is supplemented by what might be considered, more or less, as committed improvements already specified in government agreements, as well as the network of regionally significant transit initiatives described in Chapter 5. Both are shown in Figure 6.2.

Data on population, employment, and trip origins and destinations derive from the most recent travel information provided by the 2006 Transportation Tomorrow Survey.[18]

[18] *2006 Transportation Tomorrow Survey*, Toronto: University of Toronto Joint Program in Transportation, 2008.

FIGURE 6.2 – THE RECOMMENDED NETWORK



For purposes of illustration, direct benefits for existing transit users and potential benefits for automobile users that might be diverted to transit are shown in Figure 6.3 for six representative areas of the GTA. Four of the sub areas are based on AM peak period trip *origins* reported in the *Transportation Tomorrow Survey*. The two employment areas are based on AM peak period trip *destinations*.[19]

These data are presented in terms of cumulative travel-time savings. Referring to trip origins in central Etobicoke, for example, about 150 transit users *would* save up to 20 minutes of travel time for the improved network compared to the existing network of transit. As noted above, this number is likely small because, by and large, these users are already well served by the transit system.

For non-transit trips, the same diagram suggests that about 2,200 potential users *could* save up to 20 minutes. The shaded area is thus a measure of potential benefit treated previously.

Three points should be noted with regard to these results.

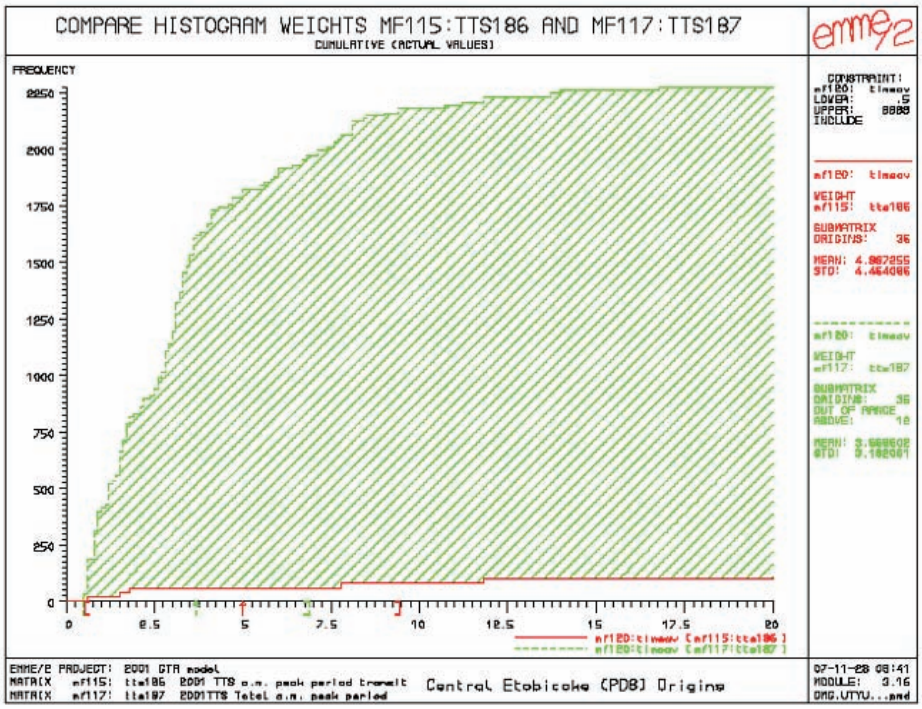
First, the time savings shown reflect only the time spent in the transit vehicles themselves. Walking and waiting times at both ends of the trip are not reflected. In many cases, these may be considerable. Waiting time, of course, is a function of service frequency. In almost every case, waiting time would be lower for the proposed new facilities, thereby generating additional travel time benefits.

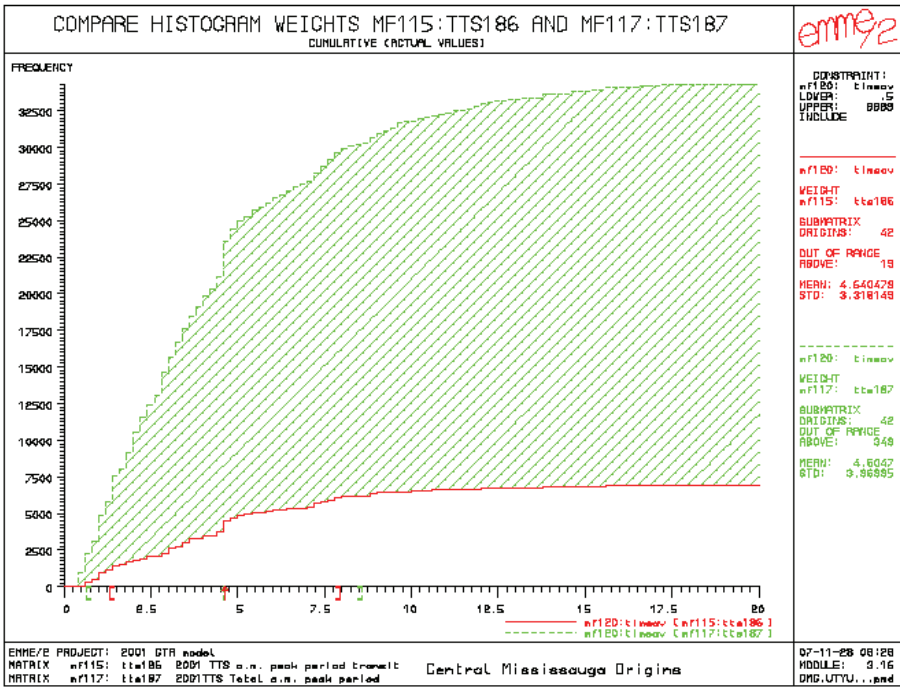
Second, improved travel times achieved by higher order transit generally result from less frequent stops which, in turn, increases average walking distances. Thus, some of the travel time benefits, real or potential, may be achieved at the expense of reduced convenience.

Third, travel time savings will almost always be accompanied by improved service reliability simply because the actions taken to increase speed (segregated lanes and transit priority at signalized intersections) also lead to better regulation of intervals between vehicle arrivals. In many cases, such improvements in dependability may be as important as savings in travel time.

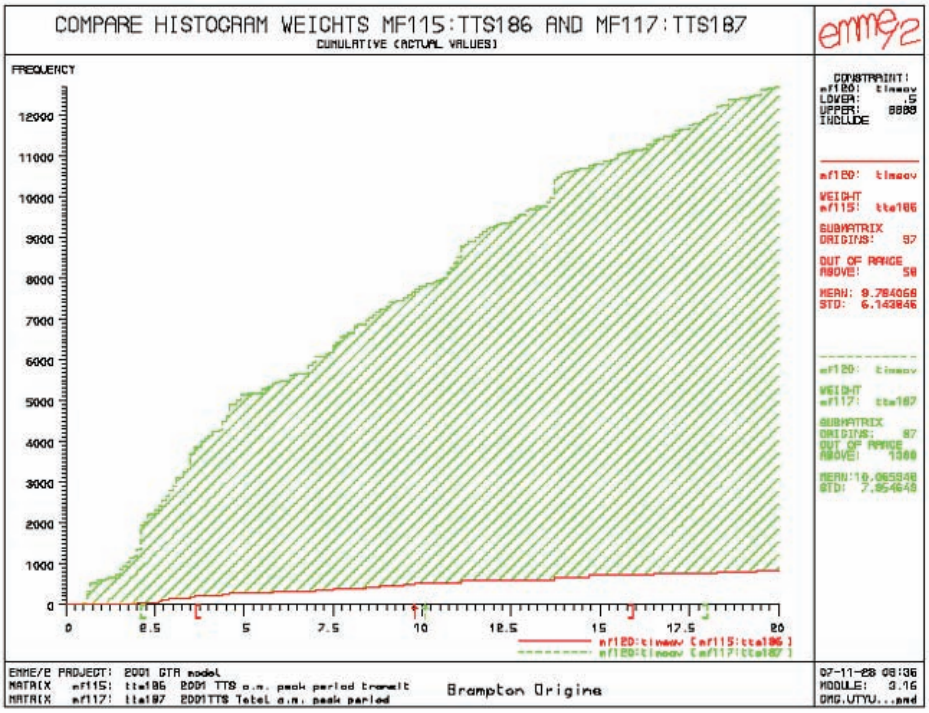
[19] These diagrams were prepared by Peter Dalton.

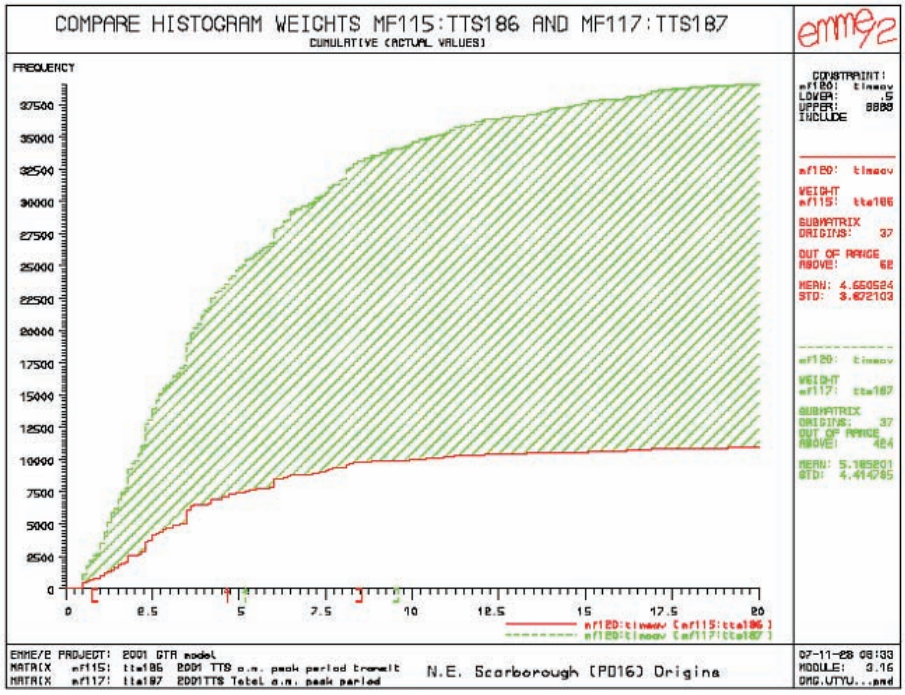
Central Etobicoke and Central Mississauga Origins



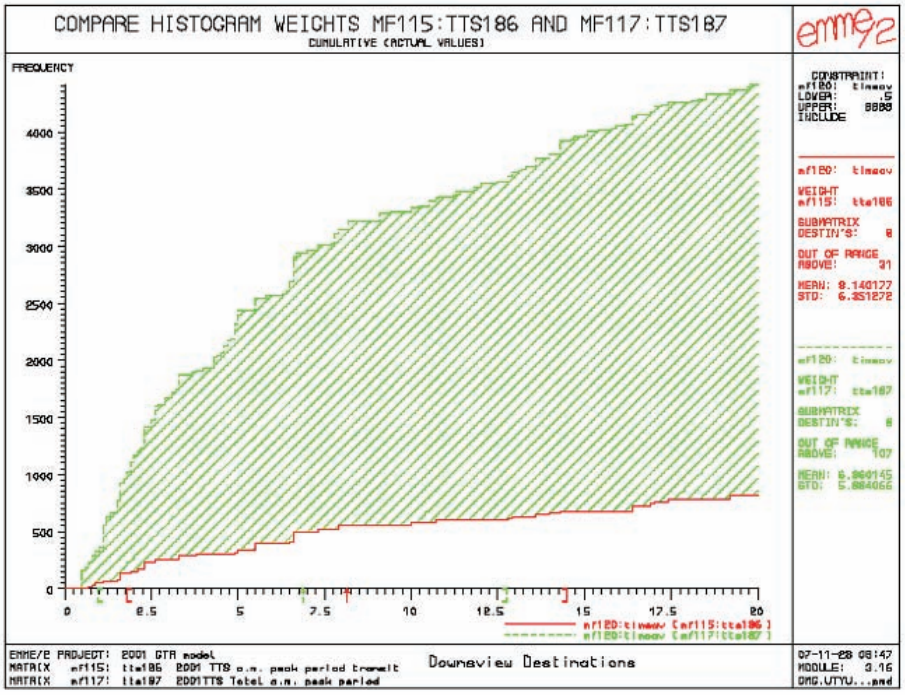


Brampton and NE Scarborough Origins





Downsview and Malton Destinations



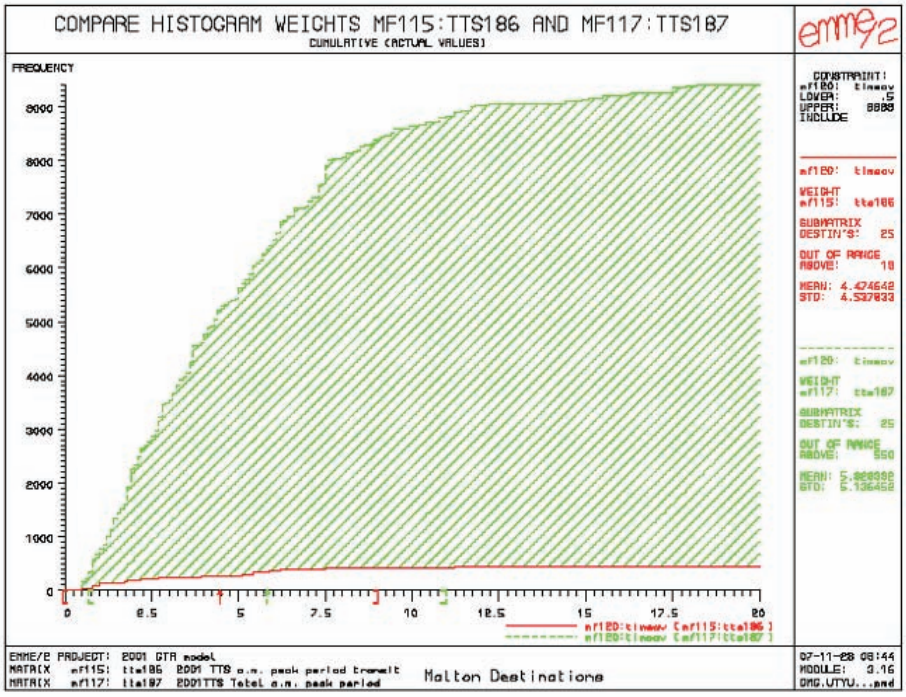
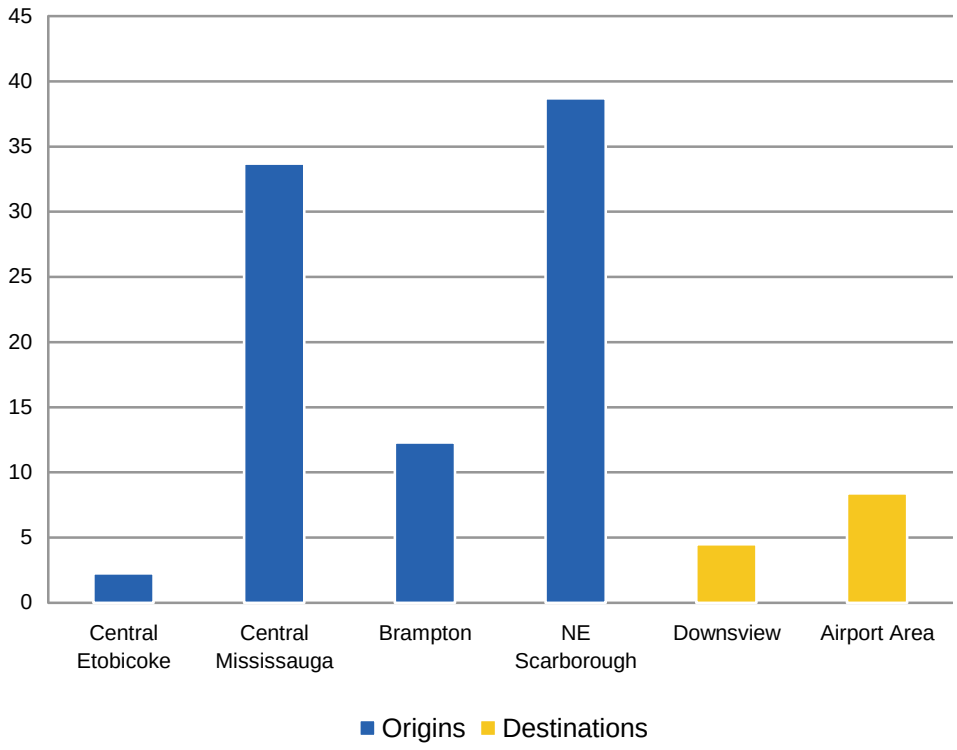


Figure 6.4 compares these results in a different form, highlighting some of the differences in the anticipated impacts of the network of transit improvements described in the previous section. A more comprehensive analysis would look at many more geographical sub-areas within the GTA to obtain a better idea of which geographic areas are the main beneficiaries.

It would also be useful to examine incremental changes associated with individual elements of the expanded network as one possible basis for establishing priorities. Both exercises, however, are beyond the scope of this study.

FIGURE 6.4 POTENTIAL SAVINGS FOR SELECTED AM PEAK PERIOD AUTO USERS (1000S)
(CUMULATIVE SAVINGS UP TO 20 MINUTES IN TRANSIT TRAVEL TIME)



7. the matter of finance

THE FUNDING CLIMATE

All recent discussion of municipal finance has been dominated by concerns about the infrastructure deficit and the growing difficulty that municipalities have in meeting their needs both for the repair and rehabilitation of existing infrastructure, as well as the needs for infrastructure expansion to keep pace with growth in population.

The need for infrastructure funding has been recognized in various federal and provincial government initiatives, probably the most important and well received of which was the first Canada Infrastructure Works Program (CIWP). The CIWP showed that municipal, provincial, and federal governments are capable of working together effectively to produce real benefits for those who live in Canadian towns and cities.

The infrastructure gap includes urban transportation as much as it does other public sectors such as water supply, sewers, hospitals, and schools. At the national level, the infrastructure gap has been documented by agencies and organizations such as the Federation of Canadian Municipalities and the Conference Board of Canada and, at the regional and local level within the GTA, by such groups as the Residential and Civil Construction Alliance of Ontario and various boards of trade.

In Ontario, prior to 1998, there actually were rational funding models that municipalities could use as the basis of more predictable transit finance. The province's Municipal Transit Program, introduced in 1972, gave municipalities well-defined parameters for rehabilitation and expansion of transit infrastructure and services.[20] Though requiring certain standards to be met (such as the service life of buses) and formal approval on a project-specific basis, GTA municipalities grew to rely on 75 percent subsidies for approved capital projects and 50 percent subsidies for losses on operation and maintenance.[21] Even without federal support of much consequence,[22] this kind of funding model aided the transit financial planning process significantly. It also led to an award by the American Public Transit Association, citing the Premier of the day as "Transit Man of the Year".

[20] The provincial government's initial foray into transit finance (and technology development) was a reaction to a quite controversial 1971 decision by the premier to essentially cancel further expressway construction within the former Metropolitan Toronto. Since Premier Davis' famous "Cities are for People" edict, urban 'transportation' within the City of Toronto has come to mean urban 'transit'.

[21] Recognizing economies of scale in the delivery of transit service, the 50 percent operating subsidy was applied to a sliding scale of cost-recovery targets based on the population of transit service areas. For the TTC, for example, the cost recovery target was 68 percent (compared to today's actual operating ratio of about 80 percent) and for smaller communities, was as low as 50 percent.

[22] Though now almost forgotten, the federal government did fund implementation of GO Transit's Richmond Hill commuter rail service in the late 1970s, based on recommendations of a study by the Canadian Transport Commission.

Within the GTA, today's approach to funding transit can be characterized by a chorus of pleas for more dollars from the provincial and federal governments, while lamenting the fact that elsewhere in the world, municipalities have obtained significant funding from national governments.[23] Funding requests have sometimes been granted and, in other cases, denied, or even worse, been left unanswered.

The Ontario government's decision to renege on funding promises for the Eglinton West subway, after construction had already begun, is clearly one of the worst possible funding scenarios any municipality might face. It represented an indefensible waste of taxpayer's dollars that could have been used to extend the first phase of the Sheppard subway to a more logical terminal at Victoria Park (as originally recommended by the Planning Department).

Thus, from a municipal perspective, today's approach appears to be one of making requests and hoping for the best. In response to this 'ask and pray' approach, most municipal officials within the GTA can only greet Ontario's latest funding promises with considerable approval. Predictable sums of money over a specified time period, earmarked for region-wide plans, but which are not dependent on matching funds from the federal government, must be construed as very positive aspects of these latest promises.

CURRENT FUNDING

Current transit funding within the GTA includes:

1) fare revenues,

2) municipal and provincial operating subsidies,

3) municipal and provincial capital funds,

4) occasional federal capital grants for, or under:

- specific projects,
- special infrastructure programs, and
- competitive processes such as the Urban Transportation Showcase Program,

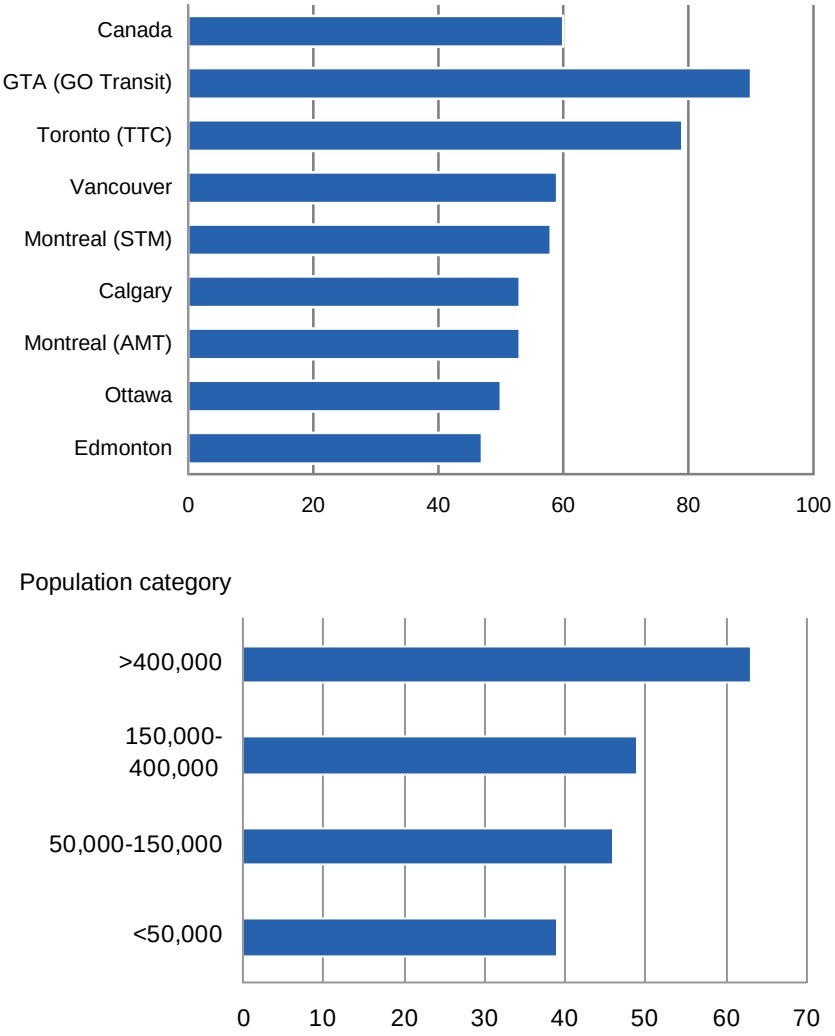
5) gasoline tax transfers, and

6) highway tolls.

[23] In Spain, for example, in addition to national government funding, EU funding was provided for subway construction and, in the U.S., the Federal Transit Administration was established almost solely to fund urban transit projects.

Almost everywhere in the world, transit fare revenues are insufficient to cover the full costs of operation and maintenance. Figure 7.1 shows cost recovery for individual Canadian cities and population categories. All Canadian municipalities require subsidies to offset operating deficits, even though TTC and GO Transit operating ratios are, by far, the highest in Canada.

FIGURE 7.1 – 2005 OPERATING RATIOS FOR SELECTED CANADIAN TRANSIT SERVICES (PERCENT)[24]



[24] These data have been reproduced from a draft document prepared by Richard M. Soberman for the Federation of Canadian Municipalities in January 2007, titled *National Transit Plan Report*.

The ratio of revenues to operating costs, known as cost recovery or the operating ratio, dictates whether revenues from a transit service make any contribution to capital investment. So long as cost recovery is less than 100 percent, there is no contribution to capital expenditures from the fare box, either for construction or vehicle replacement.

Historically, fare increases rarely kept pace with increases in the cost of living or the costs of providing transit service. Every once in a while, fairly sizeable increases were necessary on a 'catch up' basis. In the GTA, however, ever since the mid-1970s, the practice has been to introduce gradual increases, more frequently.

Recognizing that fare increases lead to some decline in ridership, most studies show that level of service (travel time, frequency, etc.) are more important determinants of ridership.[25] If service quality is more important than fares (within limits, of course), it seems reasonable to assume that there is no pressing need to reduce operating ratios from their present levels.

Thus, in addition to major infusions of new capital consistent with recent announcements, clearly, there will be a need to increase operating subsidies to cover the expanded services implied by these announcements.

On a continuous basis, the principal sources of transit subsidies in the GTA, at least since 1972, have been municipal property taxes and transfer payments from the Government of Ontario. As noted above, the Ontario government's *Municipal Transit Program* provided both capital and operating subsidies on a formula basis over about 25 years, before reverting to a more politically dominated process of individual project support.

Some of the sources of provincial and municipal transportation subsidies in the GTA are compared with Montreal and Vancouver in Table 7.1 Although periodically, there has been special funding (such as the Richmond Hill commuter rail service) and programs (such as the *Gas Tax Transfer*), the federal government has not been a major player when it comes to financing urban transportation within the GTA.[26] In some cases federal contributions and announcements have been significant, but only for short time periods that are inconsistent with the long-term nature of infrastructure investment.

[25] Somewhat analogous are the order of magnitude increases in toll charges on Highway 407 which do not seem to have reduced the demand for the higher level of service provided by this facility.

[26] The apparent lack of enthusiasm for federal funding of transit may reflect the following view: although it is clear that municipalities cannot function effectively without large increases in capital and operating funds from senior levels of government, it is not as clear that whatever funding is provided (or promised) has, or will be used, as efficiently as possible.

TABLE 7.1 COMPARISON OF TRANSIT FINANCE

Region	Agency	Responsibilities	Non-Fare Revenues
Montreal	Agence Metropolitan de Transporte (AMT)	All transit in the entire conurbation	Dedicated gasoline, vehicle registration and property taxes, Non-residential parking tax, Provincial and local general revenues
GTA	City of Toronto, Region of York, Region of Durham Mississauga Transit Other local operators	Independent local transit services and road planning	Municipal property taxes, Provincial contributions Some portion of development charges for *existing* services only.
GTA	GO Transit	Inter-regional service	Provincial and municipal contributions
Vancouver	Translink	Transit, highways, roads, bridges, tunnels, and parking throughout the entire region.	Dedicated gasoline, property, power (hydro), and parking taxes

FUNDING ISSUES

Regardless of the source of subsidies for operating costs and capital investment, the main issues are:

1) The need for federal government funding,
2) The quantum,
3) The degree of predictability, and
4) Methods of subsidy allocation.

The Need for Federal Assistance

Associations, such as the Federation of Canadian Municipalities (FCM), continue to argue that as one of the few western nations without long-term commitments to urban transit, the federal government should adopt a national transit strategy with funding of about $2 billion annually.[27]

FCM's (and others') basic premise for national government funding derives from national objectives for reductions in greenhouse gas emissions (and related impacts on global warming) and the fact that the urban infrastructure deficit, in general, reduces the competitiveness of Canadian municipalities and stifles economic growth.

[27] Big City Mayors' Caucus, *National Transit Strategy*, Ottawa: Federation of Canadian Municipalities, March, 2007.

In fact, as the FCM notes, according to the United Nations, Canadian cities rank lower than U.S. and European cities in terms of competitiveness, quality of life, and the business environment. The inference is that increasing investment in urban infrastructure is extremely important if Canadian cities are to compete more effectively in a global economy.

Formalization of federal funding for transit is entirely consistent with the 2006 statement by the Minister of Transportation, Infrastructure, and Communities. In *Reporting Back to Canadians on Provincial/Federal Consultations*, the Minister noted that consultations:

> clearly show that provinces, territories and municipalities support a long-term framework for infrastructure funding based upon predictable and stable funding, more flexible program design that could be adapted to their own priorities, and simplified and streamlined reporting and auditing mechanisms that focus more on outcomes rather than on project selection processes.

The Quantum

Estimating the magnitude of operating and capital subsidies for transit, as well as the investment in other transportation infrastructure is well beyond the scope of this study. However, the Ontario government has placed a price tag on its *MoveOntario 2022* plan at $17.5 billion over the next 12 years. That amount is probably for capital investment alone, excluding operating subsidies, and assuming (or hoping for) a sizeable contribution from the federal government.

Understandably, there are often sizeable differences between what is announced by any level of government and the actual transfer payments that find their way into the budgets of operating agencies. In part, these differences occur due to inflation between the time plans are announced and the time when investments are actually made.[28]

In this regard, *Toronto Transit City*, is currently estimated at $6.1 billion in capital investment (including $2.2 billion for the Eglinton LRT involving substantial tunnel construction), most of which is subsumed under the $17.5 billion provincial plan, again excluding operating subsidies. Once the current environmental assessments are completed, these costs estimates will undoubtedly rise substantially.

In addition, *MoveOntario 2020* includes a number of high cost projects such as extension of the Yonge subway to Langstaff and the associated modernization of the subway system of train control, electrification of the Lakeshore West GO Transit commuter rail service, and LRT in the Hurontario corridor. These projects are all likely to involve higher actual costs than the estimates prepared for the announcement. In particular, costs assumed for new commuter rail services on CP's North Toronto Subdivision are very likely to have been under-estimated.

[28] Delays in program administration between governments and the resulting inflationary impacts are major complaints frequently voiced by municipalities in the case of most existing infrastructure programs (other than the federal government's *Gas Tax Transfer*, considered to be a model of efficiency and effectiveness).

The magnitude of funding available for transportation at any level of government, however, derives primarily from changing priorities for spending in other sectors, and the inherent contradiction within all levels of government between increasing the delivery of services without increasing the level of taxation.

For these reasons, it seems clear that, in addition to funding announced under *MoveOntario 2020*, substantial additional funding will be required from additional sources.

Predictability

In today's environment, transportation agencies within the GTA rely almost entirely on annual budget approvals at all levels of government (including their own) to determine what funding will be available for transit and other infrastructure. Here, the main weakness concerns the unpredictability of funding and the restraints imposed on long range planning as a result of this uncertainty.

As argued in the earlier RCCAO report, no organization can function effectively without some estimate of cash flows over a reasonable time period. Given the long-term nature of infrastructure needs, the ability to predict and rely upon future revenues (including subsidies) and costs suggests that knowing precisely the quantum of funding that will be available is likely as important as the quantum itself.

The Ontario government's former Municipal Transit Program certainly removed much of the uncertainty associated with unpredictable funding but, at the same time, probably raised expectations that never materialized. Experience with the Eglinton subway also shows, unfortunately, that continuity in well-established *programs* can never be taken for granted.

The same can be said for federal government transit aid. Even though *ad hoc* project support and short-term infrastructure programs are always welcomed on a political basis, the new federal *Building Canada Fund* replaced, rather than enhanced, the previous time-limited *Public Transit Capital Trust.* Despite an increase in the annual level of infrastructure funding, *Budget 2007* did little to address the issue of predictability.

Various surveys have shown widespread consensus among municipal officials that the federal government's *Gas Tax Fund* ranked highly from the standpoint of effectiveness, timeliness of cash flows, and predictability, as well as simplicity of administration. One study published by FCM probably best sums things up as follows:

> While ad hoc contributions from the federal government have been useful, they have not provided the long-term structural solution needed to fix the municipal infrastructure deficit permanently.

> The Federal Gas Tax Fund should be the centrepiece of the federal government's response. The first step is to make the Federal Gas Tax Fund permanent…and to enshrine this commitment in federal legislation. [29]

An important corollary of this recommendation is that the quantum of the fuel tax transfer be indexed to reflect both inflation (as measured by the CPI) and growth in population. Since the goal is to eliminate the infrastructure deficit, adjustments for population growth helps close the gap rather than simply staying even.

In many respects, the FCM endorsed recommendation brings closure to the issue of predictability on the revenue side. Other uncertainties associated with controlling operating costs and increasing ridership and fare revenues are the proper responsibility of the municipalities and their operating agencies themselves.

Were federal legislation guaranteeing future funding to be enacted, similar action by the Government of Ontario would place the issue of predictable transit infrastructure funding on a much sounder basis than current practices. And, as treated below, predictable funding opens the door to alternative forms of financing.

The Method of Allocation

The allocation of funding from senior levels of government to municipalities probably has three main dimensions.

The first concerns the matter of equity. It is one that, within the GTA, is slightly complicated by the establishment of *Metrolinx* and the inference that most of the new provincial funding would be channelled through this new agency. The previous *Transportation Challenges* report, in fact, suggested that a significant proportion of all provincial funding be channelled through *Metrolinx*. That suggestion, however, preceded the final decision on the governance model for *Metrolinx* and should probably be revisited once that authority has been able to point to meaningful achievements on the ground.

In the meantime, as long as independent municipal transit operators continue to function in the present manner, clearly, a very large component of all provincial funding should flow directly to municipalities and their transit agencies as should *all* federal funding under the *Gas Tax Transfer* program. Although there is always room for debate, probably the simplest and most equitable method of allocating these provincial and federal funds should be based on population.

The second dimension concerns the purposes for which federal and provincial funds can be used. Since the justification for permanent federal government programs derive principally from the continuing debate about municipalities' ability to meet their

[29] Louis A. Langlois, *Towards a Permanent Federal Gas Tax Transfer*, Ottawa: Federation of Canadian Municipalities, 23 February 2007.

infrastructure needs, restricting the use of federal funds for capital projects seems consistent with the argument for closing the infrastructure deficit.

For provincial funding, there is no reason to place such restrictions on municipal finance. Here, in the light of previous successes under the old Municipal Transit Program, a strong case can be made for re-establishing a similar formula-based funding model that recognizes the need for both capital and operating subsidies, as well as the economies of scale characteristic of transit service area size and the realistic potential for operating cost recovery.

Third, both provincial and federal funding for transit should be based on preconditions to ensure that investments are selected on the basis of their contribution to transportation and land use goals. At a minimum, municipalities should be required to have council-approved transportation plans that demonstrate a reasonable assessment of needs and that also identify the highest priority initiatives.

PRODUCTIVITY IMPROVEMENTS

Although the need for transit capital and operating subsidies is well-established, there are opportunities for cost reductions in the delivery of transit service that do not seem to have received as much attention. Obviously, if costs can be reduced through improvements in productivity, for any given level of service, subsidy requirements can also be reduced or, alternatively, service can be expanded for the same absolute value of all subsidies.

The two main opportunities for improvements in transit productivity concern the use of street space and labour.

Both *MoveOntario 2020* and *Toronto Transit City* are premised on the development of extensive LRT and BRT networks, predominantly in segregated rights-of-way on existing streets and roads. Operation in segregated rights-of-way leads to increased average speeds.

Aside from the obvious benefits of higher average speed on ridership, higher average speed is synonymous with higher productivity. For airlines and marine transportation, for example, turnaround time is the largest single factor that affects productivity of vehicle use.

For transit, cycle time (the time needed to complete one round trip) dictates the number of vehicles and drivers required to achieve a design capacity. For transit, average line-haul speed (between terminals) is the major factor affecting productivity. Higher transit productivity, therefore, requires a commitment at the local level to take measures (usually unpopular) to ensure that higher average line haul speeds are achieved.

A high proportion of operation in segregated lanes is a minimum requirement for true LRT or BRT service. Significant improvements in productivity and corresponding reductions in subsidy requirements, however, can only be achieved in combination with

likely unpopular decisions regarding on-street parking, turn restrictions, and transit priority at signalized intersections.

Improvements in labour productivity also afford opportunities for reducing subsidy requirements. Labour is the largest single component of transit operating costs. Since the nature of transit demand is highly peaked during the morning and afternoon 'rush' hours, transit is a service that is ideally suited to greater use of part-time labour. Moreover, the nature of LRT service that is so predominant in *Toronto Transit City* speaks to the need for more flexible work rules for surface operation involving multiple unit trains.

It comes as no surprise, of course, that the use of part time labour and reductions in crew size are very contentious matters, politically, and from the standpoint of labour-management strife. However, at the risk of repeating what has already been noted in the RCCAO *Transportation Challenges* report, "when all is said and done, transit is subsidized in order to provide a needed public service that is not commercially viable; it is not subsidized as a means of employment creation."

Potential improvements in labour productivity through greater use of part-time drivers (even when viewed as a labour benefit if part time drivers are restricted to the pool of former, retired employees), as well as changes in work rules, however, are generally viewed very sceptically by transit officials. The prospect of labour action and service disruptions are simply the cause of too much public concern.

Under these conditions, if improved labour productivity and corresponding reductions in operating subsidy requirements are the real goals, the solution is obvious. It involves provincial legislation that limits, in any one of a variety if ways, the extent to which the failure of management and labour to reach satisfactory agreement is a price paid by the entire community. Court orders or back-to-work legislation already almost always end up being the mechanisms for ending service disruptions that are the cause of tremendous community costs and frustration.

ROAD PRICING

Road pricing is probably the most important potential new source of transportation funding receiving ever-increasing attention. Excluding tolls on Highway 407, however, which are earmarked for that road alone, road pricing has yet to be implemented anywhere in the GTA.

From Wikipedia, the free encyclopaedia,

> Road pricing is a term used to cover all the various charges applied for the use of roads. The term includes fuel taxes, licence fees, tolls, and congestion charges, including those which may vary by time of day, by the specific road, or by the specific vehicle type, being used. Road pricing has two distinct objectives: revenue generation and congestion pricing for demand management purposes. Toll roads are the typical example of revenue generation. Charges for

using high-occupancy toll (HOT) lanes or for entering a restricted area of a city are typical examples of using road pricing for congestion management.

In this regard, the new City of Toronto automobile registration tax is an entirely new source of revenue, a portion of which will find its way into the City's transit subsidies. It is not a method of road pricing that is likely to have much effect on travel behaviour.

Eventually, it would be realistic to see *Metrolinx* acquire the same right to tax vehicles in the remaining municipalities. (In fact, it would be equitable to do so.)

Probably the two most well known cases of road pricing are in Singapore and London, England.

In 1975, Singapore implemented the world's first congestion pricing scheme based on an area licensing scheme around the central business district. Initially, the licensing scheme was enforced by police. In 1998, the system was upgraded with an electronic toll collection (ETC) system. Under Singapore's scheme, users purchase and top up 'Cash Cards' that are fixed to the windshield, not unlike Highway 407 transponders. Different charges for different roads at different times are automatically deducted as vehicles pass under gantries (shown in Figure 7.2).

FIGURE 7.2 – SINGAPORE'S ELECTRONIC TOLL COLLECTION SYSTEM

According to the Victoria Transport Policy Institute[30], early in 2003:

> the City of London introduced congestion pricing by charging a £5 daily fee for driving private vehicles in an eight square mile central area during weekdays as a way to reduce traffic congestion and raise revenues for transport improvements. An automated system checks vehicles entering the charging zone against a database of motorists who have paid the fee. Despite considerable controversy the program was implemented without major problems, and has substantially reduced traffic congestion, improved bus and taxi service, and is generating revenues. Vehicle traffic speeds have increased, bus transit service has improved, while accidents and air pollution have declined in the city center. Public acceptance has grown and there is now support to expand the program to other parts of London.
>
> In 2004 Mayor Livingstone was re-elected, largely due to the success of the congestion pricing program. This is the first congestion pricing program in a major European city, and its success suggests that congestion pricing may become more politically feasible elsewhere.

As part and parcel of the London road pricing scheme, exclusive bus lanes were introduced to provide a better transit alternative for those deterred from using their cars. It is interesting to note that enforcement of these exclusive lanes is accomplished through the use of video cameras. Additional information on Singapore and London, as well as Oslo and Stockholm is provided in Table 7.2.

TABLE 7.2 - SUMMARY OF URBAN ROAD PRICING*

	Singapore	Oslo	London	Stockholm
Objective	Optimise the usage of road infrastructure	Fund new road and public transport infrastructure projects	Reduce congestion and fund investments in the London transport system	Reduce congestion, improve the environment and fund increased public transport
Pricing scheme	€0-2 per inbound trip; variable charge Monday-Friday 7.30-19.00	€1.5 per inbound trip; flat rate all days	€8-10 area charge per day, flat rate Monday- Friday 7.00-18.30	€1-2 per in- and outbound trip; variable charge Monday-Friday
Payment	Automatically deducted from pre-pay account	Most drivers pay via Autopass electronic payment collection system	Before midnight the day of passage, by SMS or Internet, or in shops	Within 14 days from the date of passage, in shops or banks or by Internet
Annual Revenue	€40m	€150m	€122m (net)	€85m
Future	GPS-based system in consideration, geographical expansion	Full payment automation, extension and variable pricing scheme considered	Western extension, DSRC pilot project	Trial to be extended and revenue used to fund bypass construction

* Source: EIU, 2006

[30] www.vtpi.org/london.pdf; Richards, 2006

Both Singapore and London are examples of road pricing intended to control, in some manner, entry by automobiles into the central core of their respective cities. Similar approaches, focussing mainly on tolling expressways within the City of Toronto, have also been suggested on several occasions.

One recent authoritative source [31], for example, concludes that:

> Neither fuel taxes nor parking fees are effective in dealing with traffic congestion. Appropriately designed road-pricing schemes are the best instrument.

Unfortunately, the concept of road pricing and, for that matter, other forms of transportation demand management (TDM), are almost seen as means of 'punishing' drivers and forcing them to use transit. It would be preferable if the concept were considered more as a means of maximizing the efficiency with which road space is used.

Setting aside the myriad of arguments for and criticisms of road pricing, probably two important considerations should be taken into account.

First, tolling major expressways in the City of Toronto, notably the Don Valley Parkway and the Gardiner Expressway could have the following impacts:

- Drivers whose operating costs are subsidized by employers or who receive tax deductions for the use of their automobiles are unlikely to be affected to any considerable extent,
- Other drivers would select alternate routes to avoid tolls, thereby adding to traffic on already congested arterial roads or exacerbating the problem of neighborhood infiltration, and
- Over the long run, some employers would relocate beyond the central city (as many have done simply to obtain cheaper parking).

Second, much of the GTA's 'liveability' derives from the continued vibrancy of downtown Toronto, a great deal of which can be attributed to its importance as the single largest employment centre in the entire region. Toronto is not London, and restricting access through discriminatory pricing places the City of Toronto at a disadvantage relative to other communities within the GTA. That disadvantage is not embodied either in Toronto's Official Plan or Ontario's *Places to Grow*.

These considerations do not form the basis of an argument against road pricing in general. They do form the basis of arguing for a form of road pricing that does not disadvantage one jurisdiction within the GTA relative to another, that does not detract from the central role which the City of Toronto plays in the economy of the entire GTA, and that does not pander to the idea that everyone can or will use transit for every trip purpose.

[31] Robin Lindsey, Congestion Relief: Assessing the Case for Road Tolls in Canada, Toronto: C.D.Howe Institute, May 2007.

In fact, the use of road pricing is very likely to become more widespread in the not too distant future. Unlike the very cumbersome method of implementation used in London, the challenge is to use the latest advances in information technology to apply road pricing uniformly and equitably across the entire GTA provided, of course, that reasonable alternatives to automobile dependence are developed in a cost effective and efficient manner.

NEW FINANCIAL INSTRUMENTS

The usual practice of basing expenditures on the year-to-year approval of budgets impedes effective long-term planning because of the uncertainty created by this process.

Historically, municipalities, as well as other public agencies have also relied on various financial instruments such as municipal bonds to supplement infrastructure funding. Following the formation of Metropolitan Toronto in 1953, for example, the Municipality issued 10 year bonds totalling some $800 million and was able to service the debt through a doubling of property assessments over the same time period.[32]

The ability to incur debt, of course, depends upon debt servicing capability (for both interest and principal). This is where the predictability of finance becomes so important. Were the federal and provincial governments to enact legislation for gas tax transfers, municipalities could issue transit revenue bonds, the repayment of which would be guaranteed by the 'revenue' derived from these transfers. In other words, guaranteed funding would essentially become 'revenue covenants'.

Debt incurred for rebuilding and expanding Pearson Airport is serviced in this manner on the basis of charges for the use of airport facilities.

To place this potential in perspective, a guaranteed 2 cents per litre from each of the Government of Ontario and the federal government, supplemented by a GTA wide annual vehicle tax of $60, would translate into a present value, even without indexing, of about $6 billion in infrastructure investment. Moreover, if both governments were to combine the right to issue tax-free municipal transit bonds in omnibus transit acts, 3 percent revenue bonds would generate a present value of about $7.5 billion. [33]

To be clear, greater use of conventional financial instruments generates capital more quickly than the conventional annual budgeting process of public sector organizations and governments. At a minimum, however, there is a need to guarantee the funding needed to service these debt instruments through appropriate legislation that saves municipalities

[32] Richard White, *The Growth Plan for the Greater Golden Horseshoe in Historical Perspective*, Toronto: The Neptis Foundation, December 2007.

[33] For purposes of illustration, these calculations are based on 3 million automobiles in the GTA, each consuming, on average, 2,000 litres of fuel per year.

harmless in the event of discontinuance. Enhancing such legislation by permitting municipalities to issue tax-free transit bonds would greatly increase the ability to accelerate the entire process for infrastructure renewal and expansion.

PRIVATE SECTOR PARTICIPATION

Public-Private Partnerships (PPP) have almost become the mantra of both the Government of Ontario and the federal government as a means of financing public infrastructure. Within the GTA, the proposed Union Station-Pearson Airport link, though still mired in the environmental assessment process, is one example of the public sector establishing the pre-conditions for private sector delivery of a transit service.

Government interest in private sector participation is noted in a recent *Metrolinx* publication that suggests "new ways of delivering transportation infrastructure must be considered".[34] The example cited in the Metrolinx report, namely, "public sector managing a competitive process" addresses the crux of the matter.

Since all Canadian transit operations presently fail to recover the full costs of operation from revenues, let alone make any contribution to capital, the likelihood of private investment in expansion of the existing GTA transit system is very low.

Certainly, strong advocates of privatization might argue that in the same manner as Highway 407 was 'sold' to the private sector, some capital elements of the transit system, such as the TTC's Yonge Street subway could also be sold on the basis of commercial viability, thereby generating capital for new infrastructure investment.

They might also argue that many individual transit routes could be operated more cost effectively through 'contracting out'. Sometimes referred to as 'cherry picking', such approaches fly in the face of the goal of developing a GTA-wide system of highly integrated transit service that supports land use and regional planning objectives.

Nevertheless, there are opportunities to engage the private sector in delivering infrastructure more cost effectively through competitive processes for design and construction or even design, build, and maintain packages. Many projects included in *MoveOntario 2020* and *Toronto Transit City* fall into this category, as does major renewal of existing fixed plant such as subway and commuter rail train control and signalling systems.

The main reason why properly supervised competitive bidding could result in cost savings derives from the conservative, risk aversion, and 'not invented here' cultures that eventually come to characterize any long established organization.

[34] Metrolinx, *Towards Sustainable Transportation*, Paper #1, Toronto: December 2007.

8. main messages

THE GIVENS

Recent federal/provincial announcements combined with *MoveOntario 2020* and *Toronto Transit City*, promise an order of magnitude increase in the GTA's transit network to meet anticipated growth in population in accordance with guidelines provided by Ontario's *Places to Grow Act*.

These initiatives are premised on the goal of reducing congestion on existing roads and accommodating significant increases in travel demand throughout the region entirely by public transportation, almost to the exclusion of any major initiatives regarding road expansion.

Current regional transportation planning studies assume a fourfold increase in suburban transit ridership and a GTA-wide increase in transit use that parallels anticipated growth in population.

Accomplishing this goal certainly represents a major challenge in the light of the last 20 year trends that show only a 13 percent increase in GTA transit use for a 45 percent increase in population. In light of these recent trends in travel demand, there is some question, as noted in the RCCAO *Transportation Challenges* study, as to whether transit solutions alone will adequately meet the needs of anticipated growth.

Many sensible proposals for transit enhancements throughout the GTA have emerged over the years. However, since so much political capital has already been invested in *Places to Grow, MoveOntario 2020*, and *Toronto Transit City*, if the goal is to actually get something done, the best course of action is probably to work within the parameters of the most recent announcements. Generating major proposals that deviate significantly from the main thrust of these announcements is unlikely to find favour within the established bureaucracy.

For this reason, this study attempts to modify and consolidate some of these proposals in order to develop a plan of action for a number of more regionally significant transit initiatives. Recognizing that all 52 projects included in *MoveOntario 2020* cannot be implemented immediately, the main conclusions pertain to three elements, namely,

- the first stage of regional transit expansion,
- financing initiatives, and
- an action plan.

THE FIRST STAGE

The first phase of regionally significant transit initiatives draws on elements included in *MoveOntario 2020* and *Toronto Transit City* to establish an integrated network intended to maximize opportunities for substituting travel by transit for travel by automobile in those areas where the greatest growth in population and employment is expected.

This network is represented by the additions shown in Figure 6.2. Excluding expansion of GO Transit commuter rail services, all of which are regionally significant, and all of which are adequately treated in that agency's long-range plans, the initial stage of network development consists of:

1) A continuous LRT service between eastern Scarborough and the Downsview subway station in the Sheppard Avenue corridor, including:

   - conversion of the Sheppard subway to LRT, and
   - a possible extension of LRT service from the Downsview subway station to the City boundary via Dufferin Street and the Finch Hydro corridor.

2) A continuous higher-order transit route linking Scarborough and Mississauga within the Eglinton Avenue corridor based on:

   - a combination of RT, LRT, and BRT technologies that would require numerous transfers, or
   - an extension of the RT technology from Kennedy in the Eglinton corridor, or
   - subway construction from Kennedy in the Eglinton corridor.

   For each of these alternatives shortening the rail transit portion and extending the Mississauga Transitway BRT technology to a bus/rail transit transfer point in the general vicinity of Keele Street is an important variant to be considered.

3) A network of higher order transit that integrates the Brampton AcceleRide project, higher order transit in the Hurontario corridor, and the Mississauga Transitway, preferably using technology that minimizes the need to transfer and provides a high level of connectivity throughout this rapidly growing area of the GTA.

4) Extension of the Yonge subway north to Langstaff, including modifications to a number of existing stations and replacement of the block signal system now used on the entire Yonge-University- Spadina subway by a modern, moving block, system of train control. *Even without a subway extension, modernization of the Yonge train control system to increase frequency of service and capacity for existing users is long overdue*.

5) Protection of a right-of-way in the Finch Hydro corridor for potential use as a busway both for public and privately operated buses.

6) Relocation of the existing inter-city bus terminal to permit better access to Union Station for all services offered by public and private operators

7) Improved transit between Pearson International Airport and Union Station.

The main benefits achieved by this first stage of network development are savings in transit travel time. Relative to present travel times, these in-vehicle travel time benefits are meaningful for the areas that have been analyzed.

For a number of the elements included in this first stage network, clearly, more detailed study and analyses are required, notably in two areas.

First, arguments are presented for independent preliminary engineering studies of the feasibility of converting the Sheppard subway to LRT, as well as the relative costs and feasibility of providing high capacity service in the Eglinton corridor by alternative technologies. The suggestion for independent assessment is not intended to reflect on the capabilities of existing organizations to carry out such studies. Independent assessment is suggested simply because the culture of most long established organizations is often characterized by a strong tendency to avoid risk and defend current practices. This culture can lead to too much emphasis on what *cannot* be done and not enough consideration of what *can* be done.

Second, particularly in the case of surface BRT or LRT (which dominate most of the recent announcements), ways of enforcing segregated transit lanes within existing road allowances through means other than physical construction are necessary. The main reason for not relying on physical means of segregated lane enforcement is to avoid creation of 'barrier' effects that are usually objected to by local residents and businesses. Other approaches to enforcement, based on advances in information technology, GPS systems, and digital imaging, have been successfully applied in other jurisdictions.

AN APPROACH TO FINANCE

Experience shows that short-term, project-specific infrastructure programs lack continuity, create uncertainty, and alter local priorities. Except for gas tax transfers, such programs are often characterized by inefficiencies in administration, lengthy delays between announcements and the actual flow of funds, unfulfilled expectations and, occasionally, claims of inequitable treatment.

It comes as no surprise, therefore, that there is little disagreement on the need to place transit finance on a long-term predictable basis. Widespread agreement on this need has

been recognized in numerous statements of elected officials representing all three levels of government.

Because public transit operating ratios cannot realistically be expected to exceed 100 percent and make a contribution to capital, funding requirements encompass both operating and capital subsidies. Funding programs that must stand the test of the annual municipal, provincial, and federal budget processes are simply inadequate to provide the predictability needed for effective long-term infrastructure planning.

Long-term predictability requires *legislation*, not short-term *programs.* Legislation can provide guaranteed streams of revenue that enhance the capability of public agencies to self-finance long-term infrastructure more effectively. Guaranteed streams of revenue also provide opportunities for financial community participation in the delivery of needed infrastructure.

In this regard, the FCM's recommendation that the federal *Gas Tax Transfer*, appropriately indexed for inflation and population growth, become an Act of Parliament, is precisely on target. Similar action by the Province of Ontario would further accelerate the expansion of transit infrastructure and services. By allowing these guaranteed streams of funding to be pledged as revenue covenants for the issuance of conventional debt instruments, the advantages would be even greater, particularly if some degree of tax exemption were part and parcel of special transit legislation.

In addition, there is a need for objective assessments, rather than polemics, on the real potential of advanced information-technology-based, road pricing schemes. Road pricing offers opportunities to provide additional revenue and alter travel behaviour in ways that do not disadvantage one geographical area over another. These opportunities can also support goals for intensification and redevelopment embodied in official plans and Places to Grow.

GOING FORWARD

As noted in the introduction to this report, as an independently funded study, no official agency may feel any responsibility to either react to or follow up on any of these suggestions or recommendations. The best that can be expected is that responsible authorities will find some messages from this report worth serious consideration. It is in this vein that the study concludes with recommendations for the following actions.

1) Terms of reference for a major engineering study of implementing a continuous LRT service between Scarborough and the Downsview subway station should be prepared and issued by relevant authorities.

   The primary purpose of the Sheppard corridor study is to validate the technical feasibility of converting the Sheppard subway to LRT, thereby providing transfer

free service between Scarborough and Downsview, and to provide, as well, cost estimates for making this change and extending LRT from Yonge Street to the Downsview subway station.

A study of this nature does not preclude either initiating an environmental assessment of a new LRT service from Scarborough to Don Mills Road or an early start of construction.

2) Terms of reference for a major engineering study of alternative technology and route combinations for the Eglinton corridor should also be prepared and issued by relevant authorities.

Because full rapid transit seems justified within the City of Toronto for the Eglinton corridor, at least between Kennedy Road and Keele Street, the proposed study should have two central objectives.

The first involves an assessment of three technology options, namely:

- *Longer LRT train service on fully dedicated elevated structures and tunnels,*
- *A new subway consistent with the original concept for the Eglinton West subway, or*
- *Extension of the Scarborough RT from its present terminal at Kennedy Road.*

Independent preliminary designs and cost estimates that can be used to compare all three alternatives from the standpoint of total capital costs, ease of implementation, and service benefits, are required.

The second objective should be to examine the provision of continuous BRT service between the Mississauga Transitway and a major bus/rail transit interchange nearer to Keele Street.

3) Mississauga's forthcoming Hurontario Corridor Transit Study should place special emphasis on the impact of technological choice on integration with Brampton's AcceleRide and the Mississauga Transitway. The objective should be to maximize connectivity of these inter-related projects and offer seamless, higher order transit throughout this rapidly growing area of the GTA.

4) The Government of Ontario should protect a right-of-way in the Finch Hydro corridor to permit the operation of future bus services on an exclusive busway.

5) The Ontario Minister of the Environment should make some decision on the proposed terms of reference for the Individual Environmental Assessment of the proposed Union Station-Pearson Airport Link.

6) The Ontario government should engage qualified advisors, skilled in both economics and information technology, to assess the benefits, equity and practicality of introducing region-wide road pricing that neither disadvantages one geographical area with respect to another nor contradicts regional goals for intensification and redevelopment.

7) An organized campaign should be developed by GTA municipalities to promote federal government Gas Tax Transfer legislation as a source of predictable, indexed, guaranteed funding as the main component of a National Transit Act.

   This campaign could incorporate such groups as the Big City Mayor's Caucus of the FCM, the Association of Municipalities of Ontario (AMO), and GTA boards of trade. A formal canvas of all individuals seeking office in the next federal election should be an important element of this campaign to enact federal transit legislation.

   Indexing, as well as the ability to pledge funding guaranteed by legislation to service debt should be integral components of efforts to formalize federal funding assistance in this form.

   In addition, because transit infrastructure may not be as important in many small municipalities, legislated gas tax transfers should allow flexibility to use some funding for other municipal investment.

8) Similarly, the Ontario government should formalize its commitment to long-term transit finance through appropriate legislative instruments that guarantee future streams of funding for expanding the network of transit service.

transportation OPPORTUNITIES

IN THE GREATER TORONTO AREA

BUILDING ON TORONTO TRANSIT CITY
AND MOVE ONTARIO 2020