

Chapter from

*GreenTOpia: Visions for a Greener Toronto*

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## A transportation vision for Toronto

Transit is crucial to all modern cities. And Toronto is in dire need of a bold, imaginative plan to expand and improve its rapid-transit system. This essay offers a vision of the transit system the people of Toronto deserve and one which we, as a society, can readily afford if we adjust our priorities accordingly. There are strong environmental reasons for shifting car-based trips to rail-based rapid transit – as a contribution to reducing the emissions of greenhouse gases and a wide range of local and regional air pollutants. There are practical, economic reasons for shifting away from cars, mainly related to the growing threat of peak oil, and the steep increases in the price of gasoline that can be expected in the near future. Government standards that require dramatic improvements in car-fuel efficiency are one way of addressing global warming and the peak in oil supply, while air pollution can be reduced through a further tightening of pollutant emission standards. These measures should accompany efforts to reduce overall car travel in the Toronto area.

However, fuel efficiency and air-pollution standards will not address the growing problem of traffic congestion and the stresses and decrease in the quality of life associated with a car-dominated urban fabric. Only a significant expansion of convenient, rail-based rapid transit can deal effectively with these issues, while also contributing to the fight to save the global environment. Reduced health-care costs will result from reduced pollution, but also because public transit encourages walking – most transit trips begin and end on foot – and this provides at least some minimal exercise to an otherwise sedentary population. An improved quality of life arises through reduced air pollution, reduced congestion and noise, increased safety and the greater aesthetic appeal of less car-dependent cities.

## **What does Toronto need from its transit system?**

A transit system able to achieve the goals outlined above will be:

- # fast
- # reliable
- # interconnected
- # resilient
- # redundant
- # able to stimulate compact urban form
- # able to maximize the number of cars taken off freeways and roads
- # able to facilitate removal of eyesores such as the Gardiner Expressway

A fast transit system requires two elements to form its backbone: an expanded subway system and a greatly improved regional rail network (GO Transit) with more stops within the City of Toronto. Reliability depends in part on adequate ongoing maintenance so that equipment failures are rare to non-existent, but it also requires investment in the types of service (such as subways) that are not subject to disruption by automobile traffic or extreme weather. Resilience means that if one part of the system breaks down, the rest of the system is minimally affected. Redundancy means that there is more than one convenient way to get from one point to another within the system. Resilience and redundancy are features of a well-interconnected system consisting in particular of links between the subway and a GO network that is designed to transfer passengers between points within the City of Toronto, rather than almost exclusively between points inside and outside the city, as at present.

Toronto's subway system has fallen significantly behind that of other major cities in the world, including cities in the U.S. and in developing countries such as Malaysia and Mexico. The current subway network in Toronto is a mere 63 kilometres in length, compared to 230 kilometres in Madrid, 368 kilometres in New York, and 415 kilometres in London. The vision presented here adds another 98 kilometres of subway lines to Toronto's system. This is a significant extension, something many people, including some environmentalists, regard as unrealistic, out-of-reach or a waste of scarce public funds. Instead, streetcar lines with dedicated rights-of-way (generally referred to as LRT or light-rail transit) are proposed as the appropriate alternative. The problem with streetcars is that they are too slow for all but the shortest trips, even when not impeded with traffic. In fact, even regular subways are slow for travel from one end of the city to the other, as anyone who has taken London's Tube or travelled from one end of Toronto's Bloor-Danforth line to the other can attest.

The major subway routes in New York City have four tracks – one express line in each direction and one local line in each direction. The express lines stop at every third or fourth subway stop, allowing passengers to zip quickly from Uptown to Downtown, and to transfer to the local line if need be. We can have something similar, but at less cost, if underground subway lines are built as express subways and dedicated streetcar lines are built at street level, directly above the subway line, to serve as the local service. That is, instead of choosing between subway lines or streetcar lines on major routes, we build both. The most costly part of subway lines are the stations. The cost savings through a reduced number of stations, it turns out, largely offsets the cost of the streetcar service. The result is a transportation route that is better than a subway line for about the same cost: the subway line is faster because of fewer stations, but the streetcar service provides more closely spaced boarding points than the current spacing of subway stations in Toronto. The inherent slowness of streetcars does not matter because one does not have to travel very far on them – usually no further than half the distance between one express subway stop and another.

### A public-transit vision worthy of the City of Toronto

The accompanying figure presents a vision of an interconnected rapid-transit system for the City of Toronto. This vision involves:

- # building an express subway line along Queen Street that would link to the Bloor-Danforth line at both ends (as originally proposed in the 1960s), but also to four of the five GO transit lines that would intersect it, and retain the existing surface streetcar service

- # building a combined express subway-LRT line the length of Eglinton Avenue, from the Eglinton GO station in the east to Martin Grove Road in the west
- # creating a single loop out of the Spadina and Yonge subway lines by linking the two together at or north of Steeles Avenue, and passing through York University
- # extending the Bloor-Danforth line to the Scarborough Town Centre and removing the existing Scarborough RT
- # extending the Sheppard Avenue subway line east and south to the Scarborough Town Centre
- # extending the Sheppard Avenue subway west to Etobicoke and then south to connect to the Bloor-Danforth line, with a connection to the Eglinton line and two GO lines as well
- # converting the midtown CP freight line to a high-frequency rapid-transit corridor – something proposed many times in the past (see, for example, Neville et al., 2001)
- # realigning the Richmond Hill GO line between York Mills Road and Bloor Street, as proposed by GO Transit (GO, 2000a)
- # converting all GO lines to high-frequency (fifteen- to twenty-minute) all-day service, as proposed by the Toronto Board of Trade (Neville et al., 2001) and by GO Transit itself (GO, 2000a), and placing stations at the intersection of major roads and the realigned Richmond Hill line, so that it can serve as a north-south rapid transit link within the city itself.

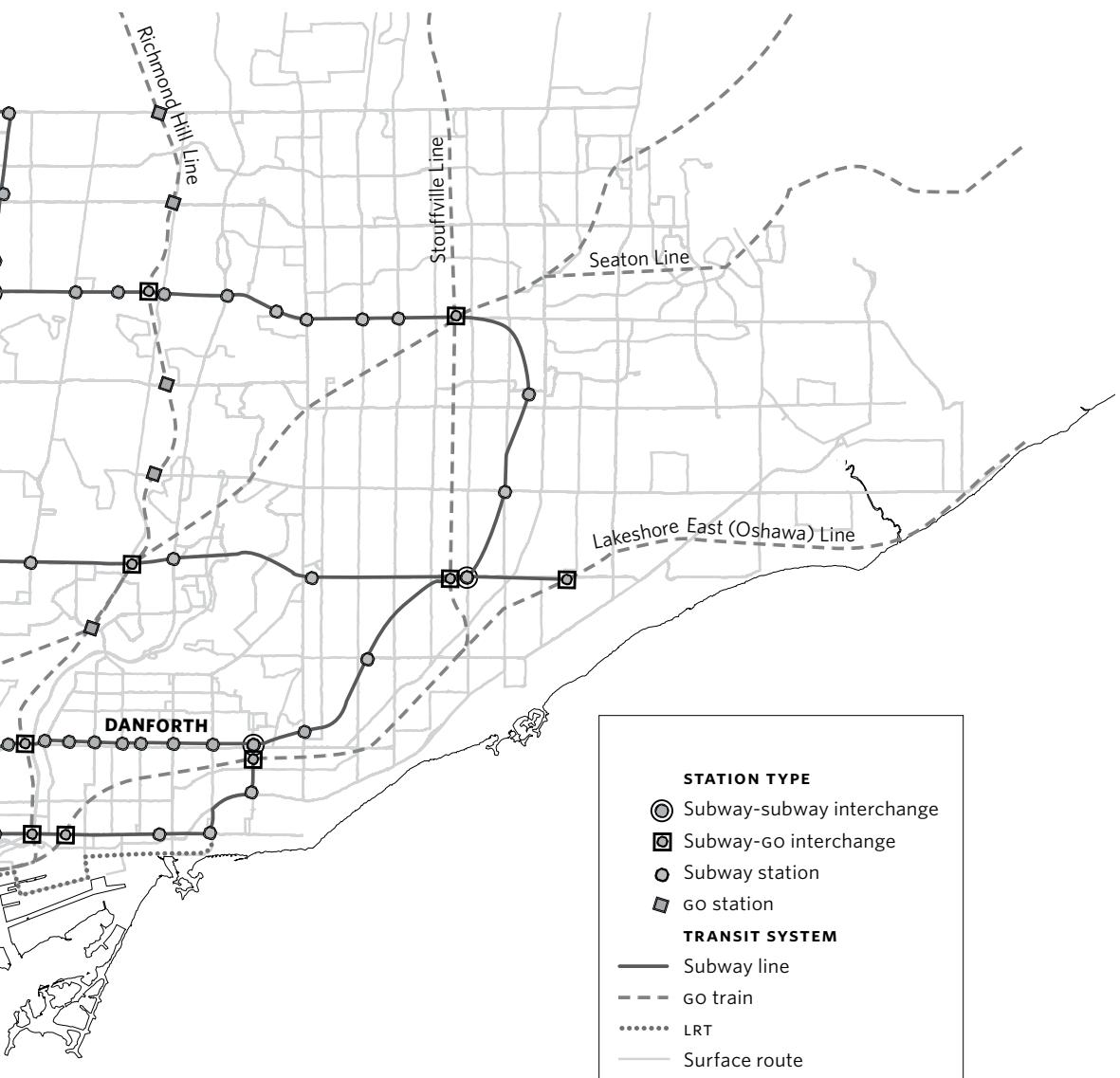
The existing Scarborough RT is at capacity, but transit cars that can be used on this line are no longer being manufactured, meaning continued use of this line will require expensive alterations. This presents an opportunity to scrap the RT altogether and extend the Bloor-Danforth subway northeast to the Scarborough Town Centre, where it would continue northward as the Sheppard subway. The Sheppard and Bloor-Danforth subways lines would then be part of a single large loop that links with all the GO lines into the city. The Yonge-University-Spadina line would form a second loop. Looping the lines serves the goal of resiliency, since an impediment in movement of subways in one direction would not affect travel in the other direction. Why? Each direction would run on its own continuous, looping track, instead of going back and forth.

In addition to these new subway lines, a surface LRT line would be built along the waterfront from Etobicoke in the west, through a proposed GO/subway station straddling the Lakeshore West GO line and the Queen subway line at Roncesvalles Avenues, and on to Woodbine



Avenue in the east, where it would turn north to link again to the Queen Street subway line.

Under the proposed vision, rapid access from the Oshawa GO line to the central axis of the city would be available along the Sheppard, Eglinton, Bloor-Danforth and Queen subway lines. The Eglinton and Sheppard lines straddle Highway 401, and the Eglinton line would provide express



subway service into the Yonge Street central axis of the city. This would provide a competitive alternative to commuter traffic into Toronto along Highway 401 from the east, as some commuters could instead take the Oshawa GO train and transfer to the Sheppard or Eglinton subway lines. The Richmond Hill GO line – which could serve many of the commuters currently using the Don Valley Parkway – would be connected to the

four east-west subway lines. Commuters on the Lakeshore GO line would have access to the entire central waterfront and adjoining portion of the city through a station providing a direct connection to the Queen subway and waterfront LRT. This would relieve pressure on the Gardiner Expressway.

This vision stands in contrast to the Transit City proposal of the City of Toronto and the TTC, for which partial funding promises have been made by the Province of Ontario. This proposal relies mainly on slow-moving streetcars (especially slow compared to express subways), requires annoying changes in transport mode (by, for example, extending the Sheppard subway as an LRT rather than as a subway and by retaining the Scarborough RT) and, where subways are extended, they are extended into low-density suburban areas where they make the least sense. Some elements of Transit City, however, could be usefully incorporated into the vision presented here – in particular, LRTs proposed for the length of Jane Street and Don Mills Road, and on Finch Avenue West. Lawrence, Ellesmere and Steeles avenues would also be good candidates for LRTs in the long run.

Some components of this vision will have far-reaching, positive impacts on Toronto's social fabric. For example:

### **The Eglinton Avenue transportation corridor**

The Eglinton subway line proposed here is built in part as an express transit line, with only one-third as many subway stations as there would otherwise be along the express portion. Local service is provided by placing a Spadina Avenue-type LRT on top of the subway line, in the middle of Eglinton Avenue, with a dedicated right-of-way and trees on either side. The Golden Mile region in Scarborough – which contains a strip mall with lots of large parking lots – could be redeveloped along the lines of the Greenwood Race Track area. This would include both 'Main Streets' housing – five- to seven-storey developments consisting of retail at street level, one floor of commercial space and three to five floors of residential space – and traditional row housing on a grid street plan with back lanes. Altogether, the area that could be redeveloped is four to six times that of Greenwood. The entire stretch of Eglinton Avenue from the Kennedy subway station to beyond the Eglinton GO station, and between Martin Grove Road and Scarlett Road in Etobicoke, are also prime candidates for this type of redevelopment. The placement of the LRT at surface level, with a dedicated right-of-way flanked by trees, would serve to create a more vibrant streetscape, needed to attract the kinds of development that will contribute to the overall success of the new transportation corridor.

## **The Queen Street subway and the redevelopment of the Toronto waterfront**

There has been much discussion of dismantling the Gardiner Expressway. Its removal would improve the City in innumerable ways. It is hard to imagine anyone reading the report by Robert Fung ('Our Toronto Waterfront: Gateway to the New Canada') and not being inspired by the improvements that could be achieved if this eyesore were dismantled. However, the City seems to lack the courage to push ahead with this bold initiative. The greatest difficulty is perhaps in accommodating traffic during the deconstruction phase. This underlines the importance of having some sort of alternative, able to accommodate as many commuters as possible, in place before the demolition crews get to work. Current thinking calls for replacing the Gardiner Expressway with a surface road of equivalent capacity, resulting in a streetscape that could be as much of a barrier to the waterfront as the Gardiner. A Queen Street subway, linked to the Lakeshore West GO line just as it turns north to the Bloor-Danforth line, provides an alternative to commuters currently using the expressway, particularly if accompanied by more frequent GO train service.

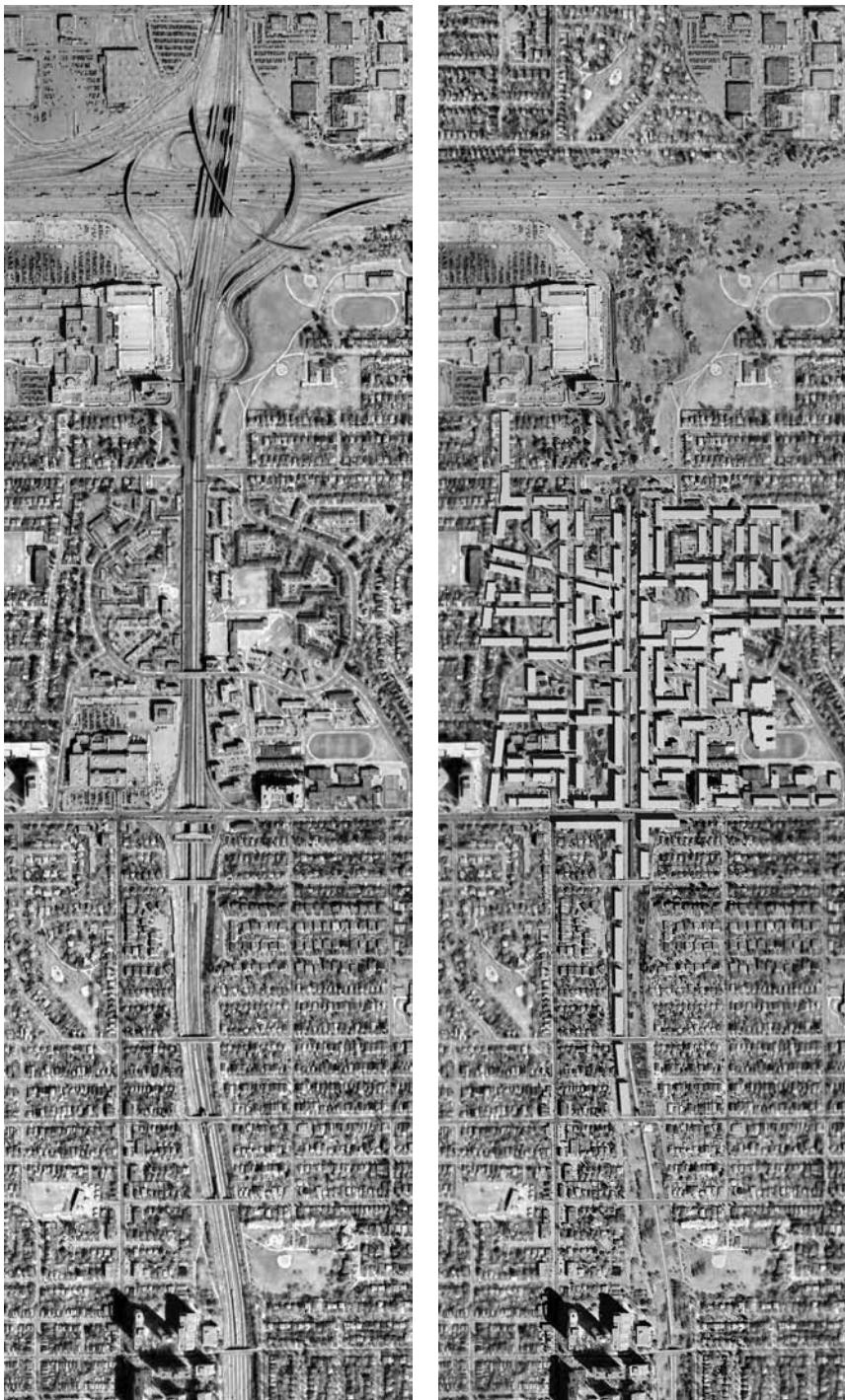
Thus, the construction of an express Queen Street subway line should be seen as part of the City's strategy to eventually remove the Gardiner Expressway and replace it with reduced surface traffic capacity.

## **Removing the Allen Expressway**

Another expressway that should be removed as an early step in the long-term transformation of Toronto's transportation infrastructure is the Allen Expressway. It was meant to continue south to the central city and never intended as a short spur from Highway 401 dumping traffic onto Eglinton Avenue. Demolition of the Allen would free up a huge right-of-way that could developed as a moderately high-density, mixed-used, pedestrian-oriented corridor tied to the Spadina subway line. Even better use of the existing line would be made if a swath of properties on either side of the expressway were expropriated and developed as a transition zone between the high-density corridor and the surrounding neighbourhoods. A concentrated source of traffic congestion on Eglinton Avenue would be eliminated at the same time.

## **So how much will all this cost?**

The above vision entails another 98 kilometres of subway. If built continuously over a period of twenty years, this requires construction of 4.9 kilometres per year. At a rough cost of about \$160 million per kilometre, \$2.5 million per subway car, and seven subway cars per kilometre



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of subway, the required capital funding is about \$867 million per year. Expansion of the GO Transit system, construction of a waterfront LRT line and selected other lines in the GTA, and funding for maintenance of the existing transit systems in the GTA would require about \$1 billion per year, bringing the total required expenditure to about \$2 billion per year – for at least the next twenty years.

This might sound like a lot of money, but it is only 1 percent of the contribution of the GTA to Canada's GNP, which was about \$203 billion in 2002. Two billion dollars per year amounts to five minutes per day worth of income from the residents of the GTA if the average person works a full eight hours per day. If the transportation plan presented here saves the average commuter five minutes per day, then it is worth the investment from the point of view of time savings alone, not to mention the reduction in congestion-related stress and air pollution associated with our heavy dependence on the private automobile.

Toronto needs a civic leader who can convincingly make this case to the higher levels of government, which possess the funds required to make this vision a reality. There is no substance to the claim that we cannot afford to create and maintain a first-class rapid-transit system in Toronto. We must make these investments if we are going to do our part in addressing the threat of climate change and air pollution in a way that enhances the economic and social health of Toronto.

#### FURTHER INFORMATION

This vision is based on a more complete analysis of the costs, benefits and possibilities involving express subway/local streetcar service, found in the report *Eglinton Avenue and Queen Transportation Corridors: Concept, Costs, and Benefits*, by L. D. Danny Harvey and K. Myrans, available from [www.geog.utoronto.ca/info/faculty/Harvey.htm](http://www.geog.utoronto.ca/info/faculty/Harvey.htm). The costs of subways and LRT lines were computed from spreadsheets provided by the TTC, while the costs of GO Transit improvements were taken from GO Transit itself (GO Transit, 2000).

#### OTHER CITED REPORTS

GO Transit, *Route Map of the Future*, 2000.

R. Neville, D. Gurin, E. Stokes and D. Thwaites, *A Strategy for Rail-Based Transit in the GTA* (Toronto Board of Trade and Toronto Atmospheric Fund, 2001).

(OPPOSITE) Allen today, gone tomorrow?