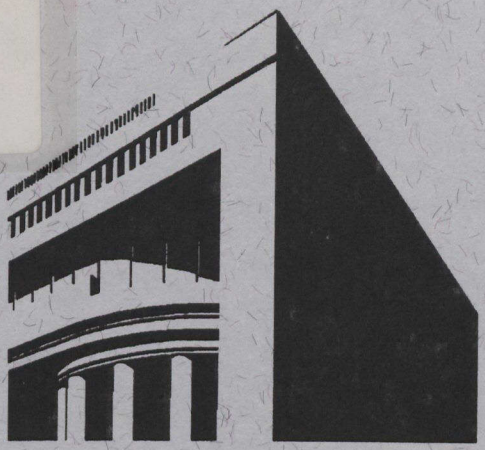

Canadian Studies Grant Programs

Public Policy: The Key to Rejuvenating Canadian Urban Transit

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Canadian Embassy/Ambassade du Canada
Washington, D.C.
1997

This manuscript is a product of the Canadian Studies Research Grant Program. The program promotes research in the social sciences, journalism, business, trade, environment, and law with a unique relevance to Canada, or in the context of the bilateral or North American relationship; and the social, cultural, political, and economic issues that impact on these relationships in the 1990s.

Research grants are designed to assist individual American scholars, a group of scholars, and/or scholars working with a cooperating Canadian institution, in writing an article-length manuscript of publishable quality that contributes to the development of Canadian Studies in the United States and reporting their findings in scholarly publications.

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PUBLIC POLICY: THE KEY TO REJUVENATING CANADIAN URBAN TRANSIT

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February 10, 1997

Paper submitted for publication consideration exclusively to the journal Transportation.

Note: This paper is also being submitted to the Canadian Embassy's Canadian Studies Research Grant Program as the required article-length final report for the project "New Perspectives for Rejuvenating Canadian Urban Transit," which the author directed from February 15, 1996 to February 15, 1997. The author gratefully acknowledges the financial support from this Canadian Studies grant to update and expand his previous research on urban transport in Canada.

PUBLIC POLICY: THE KEY TO REJUVENATING CANADIAN URBAN TRANSIT

by John Pucher

Abstract

After two decades of impressive growth in services and ridership, Canadian transit has been experiencing difficult times in the 1990s. Adverse demographic shifts, high unemployment, rapid suburbanization, service cutbacks and fare increases caused large ridership losses from 1990 to 1996. With the end of the long recession, unemployment rates have been falling, but virtually all other factors continue to work against transit. Moreover, with many provinces sharply curtailing or even eliminating subsidies, some transit systems are being faced with a genuine fiscal crisis. Without adequate funding, transit will be forced to continue raising fares, cutting services, and postponing necessary modernization. That would cause further ridership losses which might be irreversible.

This paper proposes two sets of strategies to rejuvenate Canadian transit. Transit systems themselves could do much to enhance their competitiveness by trimming costs, rationalizing services, choosing more cost-effective investments, offering more attractive fare options, and opening up some services to competitive bidding. Without the support of public policy, however, transit cannot succeed. Local governments must impose higher taxes and fees on auto use, restrict parking supply in congested areas (and increase its price), implement traffic priority measures for transit, and enforce land-use policies that encourage compact development and discourage low-density suburban sprawl. Finally, provincial and local governments together must ensure adequate funding for transit. Even if some provinces eliminate their direct subsidies, they should at least facilitate local government assistance by permitting dedicated taxes to be levied at the local level, preferably taxes on auto ownership and use that reflect the auto's social and environmental costs.

PUBLIC POLICY: THE KEY TO REJUVENATING CANADIAN URBAN TRANSIT

by John Pucher

Introduction

During the 1970s and 1980s, Canadian transit was widely viewed as a model aspired to by transit systems in the United States and praised by city planners and transport specialists throughout the world. Canadian transit systems were more profitable (or less unprofitable), service quality was higher, and per-capita transit ridership was roughly three times as high as in American cities of comparable size. Moreover, land-use and transport policies were much better coordinated in Canada, leading to more compact urban development, thriving central cities, and much less suburban sprawl (Cervero 1986; Kenworthy 1991; Pucher 1994).

Since 1990, however, Canadian transit has been experiencing some of the same problems plaguing American systems for many decades. Low-density suburban sprawl is on the increase around virtually every Canadian city, resulting in ever more residential neighborhoods and employment centers that can only be reached by car. That is the normal situation in American suburbs, but a sharp contrast to the historically more compact development in Canada. The combination of suburban sprawl, high unemployment, and provincial funding cutbacks have led to transit ridership in Canada falling by 12% between 1990 and 1995. Even at that level, per capita transit use in Canadian cities remains at least twice as high as in the United States. Nevertheless, the recent sharp decline in Canada is disconcerting, since it may signal the beginning of a long-term decline (Perl and Pucher 1995).

Although transit ridership has generally been falling in Canada, there is considerable variation from one province to another: transit continues to grow in some provinces, while it has been declining in others. To some extent, the differential success of transit can be linked directly to different provincial policies on transit and roadway funding. Local government policies on land-use, parking, transit subsidies, traffic management, and transit subsidies also vary. By examining such differences, this paper evaluates the importance of public policies in explaining the recent decline of Canadian transit and proposes policy shifts that would enable a return to a new period of growth.

Even within Canada, one can find examples of success stories that might be more widely adopted to help rejuvenate transit. Europe, however, offers the world's richest source of public policy options to support transit and discourage excessive auto use. In many ways, Canadian cities and their transport systems are more similar to Europe than to the United States. Thus, European experience may be especially valuable in dealing with the problems of Canadian transit. In particular, cities in Germany, Switzerland, Austria, the Netherlands, and France have been quite successful at increasing transit ridership and, in some cases, even increasing transit's share of urban travel (modal split). Many of the public policies and planning techniques used in Europe may be applicable in the Canadian context, at least in some modified form.

Recent Trends in Canadian Urban Transit

An overview of recent trends and the current situation is necessary as background to any analysis of ways to rejuvenate urban transit. This section examines actual developments to date and considers alternative explanations for the downturn in Canadian

transit ridership since 1990.

Ridership Trends

The 1970s were a decade of enormous expansion for transit both in the United States and Canada. In the United States, transit subsidies increased more than 15-fold (1,408%), leading to 21% more vehicle kilometers of service and 12% more transit riders (American Public Transit Association 1985). In Canada, transit subsidies were virtually non-existent in 1970 (with the industry breaking even in aggregate) but had grown to Can $730 million by 1980. During the same decade, Canadian transit systems expanded service by 76% and attracted 34% more riders (Canadian Urban Transit Association 1982).

The 1980s were a decade of stabilization in the United States, with only modest growth in subsidies, service, and ridership. By contrast, impressive growth continued in Canada. As shown in Table 1, ridership increased another 16%, largely due to continued service expansion (15% more vehicle km) financed by another generous increase in government subsidies (55% in excess of inflation).

It is notable that virtually all the individual urban transit systems listed in Table 1 conformed to this overall Canadian trend. The exceptions are Ottawa, which experienced a downturn in ridership starting in 1985 and continuing ever since, and Calgary, which lost riders from 1980 to 1985 and then gained about half of those lost riders back from 1985 to 1990. Otherwise, the upward trend during the 1980s was strong for all the other Canadian systems. As shown in Table 2, the growth in total ridership generally exceeded population growth, so that per capita transit use also increased: from 97 to 104 trips per year for Canada as a whole. Toronto, Montreal, and Quebec were especially successful at

raising transit use per capita. Calgary and Ottawa, by contrast, experienced rather striking losses.

Ridership trends since 1990 have been far less favorable and also more variable among cities. Overall, ridership in Canada fell by more than 11%, with further losses certain for 1996, although the completed aggregate statistics for 1996 are not yet available. As shown in Table 1, Toronto led the way in decline, with a loss of 87.2 million riders (19%). The other Ontario system, OC Transpo in Ottawa, lost 15.9 million riders (20%). Montreal and Quebec also lost riders, but the losses were smaller than in Ontario: 13% in Montreal, 15% in Quebec. Both British Columbian systems increased ridership considerably: 15% in Vancouver, 18% in Victoria. Calgary first lost riders in 1991 (due to a large fare increase), then regained them in 1992 (fare decrease) and has shown modest growth since then.

Table 2 shows all the corresponding per capita ridership statistics, which generally show larger declines or smaller increases relative to population growth. Overall, it can be seen that per capita transit use in Canada has fallen sharply since 1990, from a high of 104 trips per year to only 84 in 1995.

Service and Fare Trends

Changes in service levels and fares explain some of the shift in ridership trends observed from 1980 to 1996. For Canada as a whole, average transit fares increased during the 1980s (by 9% over inflation), but the impact was more than offset by service expansion: 15% more vehicle kilometers and 11% more vehicle hours of service. By contrast, the fare increases from 1990 to 1995 were larger (exceeding inflation by 10%) and were reinforced

by reductions in vehicle kilometers and vehicle hours of service (see Tables 3,4, and 5).

Comparisons of transit fares with auto operating costs may provide more help in explaining ridership trends, since the auto is transit's main competition. As shown in Table 7, the rises in transit fares during the 1980s were matched by roughly comparable increases in the cost of operating autos (113% vs. 108%). By contrast, transit fares increased almost three times as fast as auto operating costs from 1990 to 1995 (35% vs. 12%). Thus, the sharp decline in transit ridership during the 1990s was not simply due to fare increases that exceeded inflation, which was also the case during the 1980s, but fare increases that were much larger than cost increases for auto use. This is confirmed by an even more detailed, year-by-year examination of the data in Table 7. For example, the only year since 1990 when transit ridership has not declined was from 1994 to 1995 (roughly constant ridership), when auto user costs actually increased faster than transit fares (4.4% vs. 3.1%). The implications of this relationship for public policy are explored later in this paper.

Changes in service levels appear to explain much of the variation among individual cities. Comparing Tables 1 and 5, one sees that Toronto, which experienced the largest ridership losses, also cut back service the most. Vancouver and Victoria, which had the most ridership growth, expanded service the most. Montreal, which suffered modest ridership losses, made only slight cutbacks in service.

Fares appear to have increased considerably in all the Canadian transit systems since 1990, so that factor helps little in explaining differences among cities in ridership trends. It is noteworthy, however, that average fares are much lower in Montreal and Quebec than in Toronto or Ottawa. This is due to overall provincial policies. Passenger fares in Ontario

are required to cover a higher proportion of operating expenses than in the Province of Quebec. Thus, as shown in Table 8, passengers pay 68% of costs through the farebox in Toronto, but only 48% in Montreal.

Impacts of Unemployment

Virtually all observers have noted that the long, deep recession in Canada has contributed to losses in transit ridership, since transit use in Canada, as almost everywhere in the world, is concentrated during the peak hours for work trips (Soberman 1997; Schimek 1996; Pucher 1994). Indeed, since 1990, the overall unemployment rate in Canada has averaged three to four percentage points higher than in the United States, a surprisingly large gap given the extreme interrelatedness of the two economies. The Canadian rate rose from 8.1% in 1990 to a peak of 11.3% in 1992, and remained at the high rate of 9.5% even in 1995, when the recession in the United States was long past (see Table 9).

The high level of unemployment in Canada has obviously put an overall damper on transit ridership and explains some of the particularly sharp drop in ridership from 1990 to 1992, at the beginning of the recession. Yet as the unemployment rate has been coming down since 1992, and especially since 1994, transit ridership has continued to fall, albeit at a much slower rate than from 1990 to 1992. Another puzzling contadiction is the rapid growth in transit ridership during the mid-1980s, when Canada suffered an earlier severe recession (with unemployment at 10.5%). Since fares also rose faster than inflation during the 1980s, the only explanation for continued ridership growth is that large service increases overwhelmed the impacts of both unemployment and high fares. It was not due to

population growth, since even on a per-capita basis, transit use continued to grow.

Comparing Table 1 with Table 9 for individual cities reveals some interesting correlations. The drop in Vancouver's ridership in 1985 appears attributable to the enormous jump in unemployment there in the mid-1980s. Likewise, the extremely high unemployment in Montreal from 1990 to 1994 helps explain ridership losses there. Nevertheless, it is puzzling that Toronto and Ottawa, with unemployment rates among the lowest in Canada, experienced the largest ridership losses. Obviously, the service cutbacks and fare increases in those two cities seriously compounded the already difficult situation of high unemployment, whereas more moderate fare and service policies in other Canadian cities tended to soften the impact.

Sociodemographic Impacts

In addition to changes in unemployment rates, a variety of other socioeconomic factors have affected transit ridership, especially over the long term:

Suburbanization of population and employment. Both residences and firms are decentralizing within Canada's metropolitan areas. Although Canada's central cities are not yet in a state of absolute decline (as in the United States), most growth is focussed in the suburbs, especially in the outer suburbs, which are almost entirely dependent on the automobile for accessibility. It is impossible for transit to serve very low density suburban developments except at high subsidy cost. Even then, the multitude of scattered origins and destinations in the suburbs makes the auto so much more convenient and flexible for suburb-to-suburb trips that it has virtually no competition. As suburbanization has been proceeding throughout the 1980s and 1990s, the potential market for transit use has been

steadily eroding (Soberman 1997; Garreau 1991; Gad 1991; Canadian Urban Transit Association 1991).

Demographic shift away from transit. The Canadian population is aging, with an ever decreasing percentage in the 15-24 year-old age group, which most intensively uses transit. Whereas the baby boomers made that age group a prime market for transit in the 1970s and early 1980s, they have since moved into the 24-45 year-old age group, which is likely to own a car and use it for most travel (Canadian Urban Transit Association 1991). The demographic shift away from transit has been quite uniform throughout Canada, however, and cannot explain the large variation in ridership trends among transit systems.

Increasing auto ownership. One would probably expect that increasing auto ownership would be an essential factor in explaining the declining transit ridership since 1990. To the surprise of this author, that does not appear to be the case. Indeed, when transit ridership was increasing fastest in Canada, during the 1970s and 1980s, auto ownership per capita was also growing rapidly in Canada. Auto ownership per 1,000 population grew from 305 in 1970 to 428 in 1980 (40% increase) and 474 in 1990 (11% increase) (Statistics Canada 1996). From 1990 to 1995, however, auto ownership grew more slowly than population. Statistics Canada recently revised its definitions and methods for calculating auto ownership statistics, so that current figures and previous figures are somewhat inconsistent. Using the new statistics, the drop in per-capita auto ownership between 1990 and 1995 was 4%; retrofitting the new statistics to the old statistics suggests a slightly smaller decline of 3%. At any rate, auto ownership per capita has certainly not increased since 1990.

The decline in auto ownership obviously did not cause the decline in transit ridership. Both declines were influenced by the economic downturn in Canada, which reduced purchased power, and thus the ability to buy a car, at the same time that it curtailed employment and worktrips, and thus reduced transit ridership. The point here is simply that increased auto ownership does not appear to be the culprit in explaining transit's sharp loss of ridership during the 1990s.

Cost and Productivity Impacts

There is an extensive literature examining the impacts of subsidy programs on transit costs and productivity (Pickrell 1985; Pucher et al 1983). Most studies indicate that subsidies can encourage excessive costs and low productivity, especially if those subsidies come from higher government levels and are not tied to specific output goals (such as increased ridership). Whatever the extent of causality, it is clear that higher costs mean that subsidy funds do not go as far, thus reducing whatever positive impact subsidies can have.

Unfortunately, unit costs in the Canadian transit industry have risen considerably faster than inflation over the entire 15-year period from 1980 to 1995. In inflation-adjusted Canadian dollars, operating expense per vehicle hour rose from $72 to $86, and operating expense per vehicle km rose from $3.17 to $3.47 (see Table 10). Even on a per passenger basis, costs rose from $1.65 to $2.01. To match the sharp increase in costs, fares had to be increased throughout the period (20% above inflation), so that the percentage of total operating costs covered by passenger fare revenues remained virtually constant during the entire period.

Measures of labor productivity are not available for earlier years due to variable and inconsistent reporting of labor inputs. Since 1992, however, Canadian systems report employee hours (as opposed to simply number of employees), enabling calculations of productivity indices. Both such indices in Table 10 show substantial deterioration in productivity during the 1990s. In only three years, from 1992 to 1995, vehicle hours of service per employee hour fell by 18%, and vehicle km per employee hour fell by 14%. Since labor costs make up the bulk of operating expense, that may help explain the rising costs noted earlier.

It is not entirely clear why operating costs have risen so fast, or why labor productivity has fallen. Many Canadian systems had over-aged bus fleets during the early 1990s, which led to frequent breakdowns and high maintenance costs. A more serious problem is the increase in roadway congestion in most Canadian cities, which has hindered buses and streetcars stuck in slow-moving traffic. Not only does this reduce travel speed for passengers, and thus impair service quality, it raises operating costs per kilometer and per passenger. Finally, many new services have been extended out into the low-density suburban fringes to help promote a more transit-friendly, more compact land-use pattern over the long run, and also to win back to transit the affluent households living there. As it turns out, such suburban services have been by far the most unprofitable services within each transit system, involving long trip lengths and low vehicle occupancies. The more transit systems have tried to follow their customers to the suburbs, the more costs have risen, and with little payback in terms of additional passengers.

Another central productivity and cost problem in Canadian transit derives from the

almost complete lack of competition. Less than one percent of services is provided by private operators, so that the monopoly on transit services within each metropolitan area is virtually complete. Moreover, contracting out of selective routes or special services is extremely limited, thus foregoing a potential source of cost savings. Unlike the United States, there are no federal or provincial laws requiring private involvement of any kind in transit service provision, and without that sort of incentive, Canadian systems have become rather complacent in their current non-competitive, monopolistic structure. Of course, the labor force is almost completely unionized, which has also raised wage and fringe benefit rates and restricted flexibility in work rules.

Although not reflected in Table 10, capital costs of Canadian transit have also been a severe problem. New technology systems such as the linear induction Skytrain in Vancouver have cost much more than originally planned. Even standard buses have become far more expensive than necessary. In general, Canadian transit systems are required to purchase Canadian-made transit vehicles, and some provinces even insist that their transit systems purchase vehicles manufactured within the same province. That has certainly inflated capital costs directly, and operating costs indirectly, by discouraging the timely replacement of aging vehicles and thus inflating maintenance costs.

Funding Canadian Urban Transit

Inadequate funding is one of the most important problems facing Canadian transit systems. Of course, money alone cannot solve transit's problems, and if allocated to transit systems in the wrong way, large new subsidies might even worsen some problems, such as productivity, cost control, service misallocation, and investment imbalance. Nevertheless,

it is certain that transit will not survive without adequate government funding. There is not a single country in Europe or North America where transit is profitable; in every country transit requires large subsidies in order to compete with the automobile. Thus, it is not realistic to expect Canadian transit to stem its large ridership losses since 1990, let alone return to a period of growth as during the 1970s and 1980s, without substantial government assistance.

Current subsidy programs

Perhaps somewhat surprisingly, transit subsidies in Canada have been much less generous than in the United States. In 1995, for example, the total operating subsidy per passenger trip averaged $1.55 in the U.S. compared to only $.90 in Canada (both expressed in U.S. dollars). Moreover, passenger fare revenues in Canada cover about 55% of operating expenses, compared to only 36% in the U.S. (American Public Transit Association 1996; Canadian Urban Transit Association 1996).

As shown in Table 11, the percentage of operating expenses covered by subsidies has remained very stable throughout the past 15 years, ranging between 45% and 47%. The overall level of operating subsidy almost tripled between 1980 and 1990, even adjusted for inflation; since 1990, however, subsidy levels have remained virtually constant. Capital subsidies have been only about a third as large as operating subsidies and have been somewhat more stable, with slower growth between 1980 and 1990 (44%) but continued growth from 1990 to 1995 (22%).

Whatever problems subsidies may have caused from an efficiency perspective, they clearly enabled impressive growth in transit services and ridership in Canada during the

1980s. Conversely, their stagnation during the 1990s has unquestionably contributed to transit's decline since 1990. A sharp reduction in subsidies, as predicted by some analysts, almost certainly would cause such large fare increases and service cutbacks that transit's decline would be accelerated, perhaps irreversibly. This latter scenario seems increasingly likely as one province after another downloads its transit funding burden to local governments, which cannot afford to offset provincial cutbacks.

Indeed, the most striking shift in public transport funding in Canada has been the sharp reduction in provincial assistance. From 1980 to 1995, the provincial share of operating subsidy fell from 53% to 39%, and the provincial share of capital subsidy fell from 89% to 48%. The provincial share is certain to fall further in coming years. The Province of Ontario, for example, announced in January 1997 that it will terminate all provincial assistance to urban transit as of January 1998, and there are indications that some other provinces will follow the example of Ontario (Canadian Urban Transit Association 1997). Thus, the burden of transit finance will fall increasingly on the municipalities, since there are no federal transit subsidies to cushion the impact of reduced provincial subsidies.

The situation varies considerably from one province to another, as indicated in Table 12. The information on matching rates in 1996 may not be valid for much longer, however, since funding arrangements are changing rapidly. As already noted, the Province of Ontario has declared its intention to phase out all provincial transit subsidies, quite a contrast to the rather generous subsidies listed in Table 12. The subsidy program in Quebec remains moderately generous, with minimal operating assistance but large capital

subsidies. The most generous subsidy program is in British Columbia. Although its matching rates are not much higher than elsewhere, the total level of provincial aid is very high relative to population and transit ridership.

That aspect of funding levels is more clearly seen in Tables 13 and 14, which show actual amounts of provincial and municipal subsidy in the four largest Canadian transit systems. Perhaps most incredible is the huge amount of subsidy in Vancouver: indeed, almost as large as in Toronto or Montreal, which have roughly twice the population. Even more striking, subsidy per passenger trip in Vancouver is more than twice as large as in Toronto, Montreal and Ottawa. It is no wonder that transit in Vancouver has been able to expand its service and attract more passengers with such large subsidies.

Rejuvenating Canadian Urban Transit

The Canadian transit industry has had a tough time since 1990, and it is is facing even more difficult years ahead. It will certainly continue to suffer from demographic trends and rapid suburbanization, both of which erode transit's ridership base. Nevertheless, Canadian transit's further decline is not inevitable, no matter how problematic the current situation may seem. Transit systems themselves can do much to enhance their competitiveness by trimming costs, rationalizing services, choosing more cost-effective investments, offering more attractive fare options, and opening up some services to competitive bidding. Moreover, local governments have a wide range of public policy options that could greatly enhance transit's prospects for future success: higher taxation of auto use, more restrictive parking supply at higher prices, traffic priority measures for transit vehicles, land-use policies to encourage compact development, and of course, more

dependable, dedicated public funding for transit. Canadian transit can certainly be "saved", but only if transit systems and government policy makers are willing to undertake the necessary measures, some of which require a rather dramatic break with the past.

What Transit Systems Themselves Can Do

At the outset, it should be noted that Canadian transit systems have already done quite a bit to improve their service quality and thus attract more passengers. Virtually all Canadian systems are now replacing their aging bus and streetcar fleets with new low-floor vehicles, which offer more comfort and easier, faster boarding. Likewise, most systems are upgrading bus shelters and transfer terminals to improve passenger comfort and safety. In addition, modern, often computerized information systems are being installed throughout Canada to help passengers get up-to-date, even real-time information about bus, streetcar, and metro service schedules, fares, routes, and delays. Park-and-ride lots are being expanded in virtually all suburban areas to increase accessibility to transit services at key nodes in the low-density fringes. Moreover, Canadian cities have been increasingly setting aside reserved bus lanes on key routes and queue-jumping access ramps/lanes for buses at congested intersections. They have also been expanding priority traffic signalization for both buses and streetcars at key intersections, which automatically triggers green lights for oncoming transit vehicles. Finally, transit systems have been introducing a wider variety of tickets and passes, with varying degrees of discounts, to attract more passengers. In many instances, what is needed is simply more of the same.

Virtually every Canadian transit system would benefit from greatly expanded and better coordinated networks of roadways offering buses and streetcars preferential rights

of way through reserved lanes, queue jumping and signal priority. Ottawa and Quebec City currently have the best coordinated networks of transit priority routes, probably because both systems rely exclusively on buses and thus benefit the most from such transit priority measures. In addition, Ottawa has an extensive busway--with exclusive right-of-way--that connects bus lanes and other bus-prioritized routes. Since bus priority measures cost only a fraction of new rail systems and yet achieve many of the same objectives, Canadian systems should consider their more widespread implementation, and above all, their integration into a true network of high speed transit routes. Not only do such measures increase bus and streetcar speeds and on-time performance, they reduce operating costs. Of course, transit systems are dependent on local governments to actually implement such traffic priority measures, but it is transit's responsibility to plan them, to advocate them, and to make them an integral part of their overall service strategies.

Developing more attractive fare policies is also partly dependent on cooperation from governments and private firms, but transit systems must design and advocate the necessary improvements. Deeply discounted monthly and annual passes, which have been extremely successful in Europe, are only possible if local governments, provincial governments, and employers are willing to finance the subsidies necessary to offer discounts. Since such fare subsidies are directly targetted at transit riders, they increase ridership more than general transit subsidies and are less likely to cause productivity or cost control problems. Although most Canadian transit systems already offer various types of monthly or annual passes, most of them are not discounted deeply enough to provide a really strong financial incentive to take transit instead of the auto. Moreover, there is far

too little explicit cooperation with employers to enable monthly pass purchases through payroll deductions, or deeper price discounts through matching employer subsidies of passes, a common practice in Europe (Pucher and Kurth 1995). Almost all Dutch, German, and Swiss transit systems work together with universities to offer deeply discounted semester passes for students, another measure that has greatly enhanced ridership there. Finally, European systems have been very aggressive in marketing transit tickets as part of the entrance price to sporting events, conventions, conferences, concerts, and amusement parks. While Canadian transit systems try to adjust their schedules and service levels to meet the high travel demands of such mass events, they have made little effort at integrating their tickets into the overall admission fee, thus missing out on an obvious marketing opportunity.

Canadian transit systems should be much more rigorous in evaluating the costs and benefits of providing services on different routes and different times of day. The main culprit here is greatly underutilized suburban services. In Vancouver, for example, peak-hour suburban bus routes cover only 17% of operating costs through passenger fares, and off-peak suburban routes cover only 9% of costs through fares. By contrast, central city bus routes cover 60% and 71% of costs, respectively, during the peak and off-peak (BC Transit 1997). The extremely unprofitable suburban services are maintained primarily for political purposes, namely to ensure the support of suburban jurisdictions within the regional transit district. Such underutilized services, however, represent a waste of scarce funds and an obvious misallocation of overall transit services. While many central city buses are overcrowded, suburban buses run almost empty. Similar misallocations of

services can be found in virtually every Canadian transit system. In an era of fiscal austerity, there can be no excuse for such waste. Underutilized services should be eliminated.

Canadian transit must be especially careful to avoid large new capital projects whose benefits fall far short of costs. Given the current situation of extreme fiscal austerity, large new capital projects should probably be avoided at any rate, at least in the next few years, in favor of maximizing the effectiveness and service quality of the existing transit infrastructure. When new funds again become available for capital expansion, the mistakes of past investment decisions should be avoided. Exotic new technologies have turned out to be financial disasters in almost every Canadian city where they have been chosen. However interesting the linear-induction, magnetic levitation Skytrain in Vancouver may be, the same level of ridership could have been generated at only a fraction of the costs using more conventional technology. Not only was the new technology more expensive, but it entailed serious safety and dependability problems. The Scarborough linear-induction rapid transit line in Toronto is another example of an inappropriate, very high-cost technology chosen because of its novelty instead of realistic needs.

Canadian systems need to adopt rigorous, comparative cost-effectiveness analysis, choosing those technologies that maximize riders served per dollar spent. There must be an end to grandiose capital projects built to showcase new technologies or impress with their scale or simply as prestige objects to enhance the reputation of the transit system. If express bus services on reserved lanes or busways move passengers more efficiently, then they should be seriously considered even if they are not as dazzling as new rail systems.

Of course, there will be corridors where roadway congestion is so serious and traffic volumes are so concentrated that rail transit (either subway or light rail) may be the only feasible, and even most efficient, solution. But such expensive new investments should be more rigorously evaluated than previously for their cost-effectiveness. In particular, extensions of rail systems to the suburbs almost certainly will entail not only high capital costs but large operating subsidies per additional passenger gained. Including the suburbs in an integrated, truly regional transit system may be a laudable goal, but it generally costs so much to provide transit to the suburbs, that it may not be affordable.

Canadian transit systems should seriously consider opening up their services to more competition. As monopolistic bureaucracies, they have become rather resistant to any sort of fundamental restructuring that would enhance productivity and reduce costs. Complete deregulation is definitely not the answer, as it is essential to maintain a uniform fare structure and fully integrated, coordinated services throughout each metropolitan region. But increased competition can greatly reduce costs without sacrificing service quality, raising fares, or losing riders. Scandinavia is a good example (Anderson 1993). Bus services in Sweden, Norway, and Denmark have remained publicly regulated, with local governments determining fare structures and service levels and ensuring continued transit coordination. Yet by opening up service provision to competitive bidding among both private and public firms, unit costs have been reduced by 25%-30%. Similarly, bus services in London (in contrast to the rest of Britain) remain fully regulated but open to competitive tendering among alternative service providers. Again, the result has been dramatic cost savings: from 1986 to 1996, inflation-adjusted costs fell by 44% per bus mile

and by 22% per passenger mile, while passenger levels remained constant (London Transport 1996). Privatization is surely not the answer to all of Canadian transit's problems, but it is rather incredible that virtually no effort has been made in any Canadian transit system to even experiment with the competitive tendering of regular revenue services. Given the sharp declines in productivity and increases in unit costs in the Canadian transit industry, introducing more competition into the industry seems to be at least worth a try, especially in suburban areas, where services are currently the least efficient and most costly.

The Essential Role of Public Policy

Transit systems cannot succeed without the cooperation of local and provincial governments. Indeed, many of the problems encountered by Canadian transit systems have, in fact, been caused or at least exacerbated by inappropriate public policies. The most serious of these is the failure to require automobile drivers to pay the full social, environmental, and economic costs of automobile use. This failure to internalize the enormous external cost of the automobile represents a serious underpricing of the auto relative to transit, and has put transit at an artificial competitive disadvantage vis-a-vis the auto.

Nothing would help transit more than a full accounting of the true costs of automobile use and the assessment of appropriate taxes, fees, and charges on automobile drivers. Determining the extent of external costs from auto use is controversial, especially since some costs can only be subjectively evaluated. Nevertheless, a growing number of studies have attempted to quantify the social, environmental and economic costs of auto

use (Miller and Moffet 1993; Ketcham and Komanoff 1993; Littman 1994; MacKenzie et al. 1992; Office of Technology Assessment 1994). For the United States, the estimates range from $378 billion to $935 billion per year, the equivalent of $2.86 to $7.08 per gallon of gasoline. It is likely that the rapid growth of urban auto use in Canada has also caused substantial social and environmental costs due to air pollution, water pollution, noise, accidents, and congestion. Moreover, provincial and local governments incur enormous costs financing the construction, maintenance, policing, and administration of road networks. For the most part, auto drivers are not required to pay for such costs, thus leading to a vast underpricing of auto travel.

Of course, one can argue that the studies cited above overstate the magnitude of external costs, but even if the true values were only half of the estimated value range, that would require additional gasoline taxes of $1.45 to $3.55 per gallon (or equivalent taxes and charges of other sorts) in order to internalize costs. One can anticipate intense political opposition to any such scheme to internalize the external costs of auto use, since many auto users benefit from the current underpricing and are well enough organized to exert political pressure to preserve the status quo. Continuing the current system of underpricing auto use, however, entails large social, environmental and financial costs and surely is the most distorting inefficiency in the urban transport system. Not only does it directly provide large subsidies to auto users, but those subsidies greatly distort modal choice, thus requiring large countervailing subsidies to transit. The net result is a vast oversubsidization of the entire transport sector, artificially inexpensive mobility, excessive travel, and extremely sprawled land-use patterns built on the assumption of cheap, subsidized travel (Wachs 1981).

This is one corrective measure that is truly beyond the control of the transit industry. Without appropriate pricing of auto use, however, transit systems will never be able to compete fairly with the automobile. There is certainly no shortage of possible pricing instruments: gasoline taxes, motor vehicle license and registration fees, roadway tolls and parking taxes are obvious candidates. The technology is already available to fine-tune auto pricing and vary it according to specific situations. The problem with implementation is political, not technological.

Until the external costs of auto use are fully internalized--and that day may never come--government subsidies to transit will be absolutely necessary. It is essential that Canadian transit systems have dependable sources of funding that can enable long-term planning of infrastructure, services, and fares. Currently, transit systems are faced with drastic fluctuations in subsidy funding from year to year, and even the threat of the complete elimination of government financial support (as in Ontario). It is important that Canadian transit finally receive a dedicated source of funding, preferably financed not from general government revenues, but from taxes on automobile use. This would have the doubly beneficial impact of internalizing some of the external costs of auto use (i.e. requiring auto drivers to pay for the social and environmental harm they cause) while at the same time providing the desperately needed funding for transit systems to offer expanded services at attractive fares.

Only Quebec and British Columbia allow their municipalities to levy such taxes and dedicate their proceeds to transit finance, and even there, the levels of auto taxation are not nearly high enough, so that the funds thus raised are not sufficient to cover transit

funding needs. For example, Montreal levies a 1.5-cent per liter gasoline tax and a $30 per vehicle annual license surcharge, which together raised almost half of the total revenue for Montreal's new regional transit authority in 1996, the Agence Metropolitaine de Transport. In addition, the Province of Quebec has authorized Montreal to levy parking taxes to help finance transit, but so far, this option has not yet been adopted (Cormier 1996). In British Columbia, three taxes have been dedicated to transit funding: a 4-cent per liter gasoline tax, a $1.90 per month surcharge on residential electricity bills, and a non-residential property tax. These dedicated taxes finance all local government subsidies to transit in the Vancouver region. The problem with BC's earmarked taxes is that only the gasoline tax is related to transportation, and the electricity surcharge is quite regressive. At least BC Transit appears to be moving in the right direction, thanks to taxing authorizations from the provincial level. The situation would be improved by raising the current gasoline tax or supplementing it with roadway tolls and parking taxes instead of electricity surcharges.

Unfortunately, no other province in Canada allows municipalities or transit districts to levy taxes earmarked for transit funding. Ontario is a particularly notorious example. On the one hand, the Conservative provincial government is completely eliminating subsidies to transit; yet municipalities are prohibited from levying taxes dedicated to raising funds for transit at the local level. Thus, not only does the province reduce its own subsidies; it makes it difficult for local governments to offset the cutbacks. The drastic funding cutbacks in Ontario bode particularly ominous for transit systems there, threatening further rounds of service reductions, fare increases, and ridership losses.

There may be fears that funding raised through dedicated taxes would reduce the

pressure to increase productivity and cut costs. Thus, one modification would be to restrict use of such funding to finance European-style deep discounts of monthly and annual passes, and thus encourage long-term, high-level use by regular riders. Another possibility would be to use the dedicated taxes to finance a special subsidy fund, but to distribute that subsidy strictly on the basis of quantifiable output measures such as passenger trips or passenger km. It would even be possible to use a distribution formula that would reward systems improving productivity, raising service quality, or achieving other specific objectives.

Local governments could support the success of transit and enhance the overall quality of life in Canadian cities by doing much more to limit auto use and improve pedestrian and bicycle transport. Again, European cities have taken the lead on such policies, especially in the Netherlands, Germany, and Switzerland (Pucher and Clorer 1992; Pucher and Kurth 1995). Most cities in those three countries have reduced the number of parking places in town centers (and sharply raised parking prices), limited access of cars to congested central areas, established extensive pedestrian zones with integrated networks of auto-free or auto-restricted streets, expanded and integrated bicycle pathways, and restricted the speed, directness and convenience of auto use in residential neighborhoods through various traffic calming measures. Together, these restrictions on auto use and encouragement of bicycling and walking have curtailed auto use in some cities to such an extent that auto modal split has actually fallen, while transit use has increased both absolutely as well as relative to auto use. Some of these measures are already in effect in Canadian cities, but virtually nowhere as extensively as in Europe. Tightening restrictions on auto use would obviously help Canadian transit.

Finally, local governments exert crucial control over land use and urban development. Since density is absolutely essential to the efficient functioning of any transit system, transit benefits from zoning, building codes, land-use plans, infrastructure support policies, and tax incentives that encourage compact development and discourage suburban sprawl. On the one hand, there is a huge demand in Canada for single-family homes on large plots of land out in the suburbs, and it seems unwarranted for government to supersede such popular demands simply to encourage more transit use. On the other hand, many studies have shown that most suburban developments necessitate large public infrastructure costs as well as environmental and social costs that are not borne by suburban developers or homeowners (Downs 1994, pp. 7-16). Thus, just as in the case of auto use, the choice of low-density suburban housing is underpriced.

The European solution to this problem is strict controls on land-use. In Germany and Switzerland, there is a virtual prohibition on leapfrog development and low-density suburban sprawl. Such draconian limitations on suburbanization are surely less acceptable in a country such as Canada, where land is less scarce. But even in Canada, suburban sprawl has important social and environmental costs that merit more stringent public controls.

CONCLUSIONS AND POLICY IMPLICATIONS

After two decades of impressive growth in services and ridership, Canadian transit has been experiencing difficult times in the 1990s. Adverse demographic shifts, high unemployment, rapid suburbanization, service cutbacks and fare increases caused large ridership losses from 1990 to 1996. As the long recession in Canada finally comes to an

end, unemployment rates have also been falling, which has helped slowed down transit's decline somewhat. Virtually all other factors, however, continue to work against transit. Only concerted actions can prevent yet further decline of Canadian transit, which may eventually reach such an extent that it becomes irreversible. This paper has outlined a range of specific measures that could reverse decline and thus rejuvenate Canadian transit, leading to a new period of growth.

Transit systems themselves can do much to enhance their competitiveness by trimming costs, rationalizing services, choosing more cost-effective investments, offering more attractive fare options, and opening up some services to competitive bidding. Moreover, local governments have a wide range of public policy options that could greatly enhance transit's prospects for future success: higher taxation of auto use, more restrictive parking supply at higher prices, traffic priority measures for transit vehicles, land-use policies to encourage compact development, and of course, more dependable, dedicated public funding for transit.

The measures outlined above are not simply hypothetical pipedreams of some imaginary academic world. They have actually been successfully implemented in hundreds of European cities. Not a single policy proposed here has gone without extensive, long-term testing in a wide variety of contexts. Although the entire range of measures has been implemented in Europe, many of them are already being used to some extent in Canadian cities. Surely Canadians in almost every city can see for themselves the benefits of traffic priority measures for transit, better coordination of transit services, and discount monthly passes for regular transit riders. Moreover, a few Canadian cities provide evidence of the

success of some of the other, less widely adopted policies: traffic calming, pedestrian zones, bikeway networks, restricted auto access to city centers, limited parking supply, and land-use policies to encourage compact development and discourage suburban sprawl. Raising taxes and charges on auto use to cover social and environmental costs of driving probably represents the riskiest and least popular policy for mitigating urban transport problems, since it has not been adopted yet in any North American city. Nevertheless, it has the most potential for increasing the efficiency of the entire transport sector. Without question, the much higher cost of owning and operating an automobile in Europe is one of the most important reasons why walking, bicycling, and transit account for twice the percentage of travel in European cities as in Canada (45%-50% vs. 22%).

Unfortunately, policies in Canada seem to moving in precisely the wrong direction, especially in Canada's most populous province, Ontario. Suburban sprawl around Toronto has become rampant, encouraged by lax land-use policies of outlying suburban jurisdictions anxious to attract jobs and residents away from Toronto. The Province of Ontario is eliminating all transit subsidies, while at the same time prohibiting local governments from dedicating any taxes for transit finance. Moreover, the provincially imposed restructuring of local governments within the Greater Toronto Metropolitan Area almost certainly will decrease the political independence of central Toronto and raise the economic and political influence of outlying suburbs with little interest in improving transit.

Without supporting public policies, Canadian transit is doomed to further decline. At least some provinces, such as British Columbia, have recognized this, and have redoubled their efforts to improve transit. Likewise, at least the Province of Quebec has

allowed its cities to fully regionalized their transit systems and impose auto user taxes whose proceeds are dedicated to transit finance.

With public policies going in different directions in different provinces, Canadians can expect quite different fates for transit depending on its location. If the draconian cuts in government funding in Ontario are actually carried out, further serious decline is almost inevitable. Conversely, with continued generous support in British Columbia, transit's growth there will probably continue. Funding, of course, is not the only determinant of transit's success or failure, but it is a prerequisite for future growth, and without it, transit systems will be forced to cut services, raise fares, and lose riders year after year until transit is no longer a viable option for urban travel, the situation already existing for most American metropolitan areas. Canadians would be well advised to preserve their more balanced transport system and to avoid an automotive monopoly on urban travel.

REFERENCES

Andersen, Bjorn (1993) "Regulatory Reform in Local Public Transport in Scandinavia," in D. Banister and J. Berechman (eds.) Transport in a Unified Europe Amsterdam: Elsevier Scientific Publishers, pp. 249-289.

American Public Transit Association (1985) Transit Fact Book. Washington, D.C.: American Public Transit Association.

BC Transit (1990 to 1996, annual) Annual Report. Vancouver: BC Transit.

BC Transit (1990 to 1996, annual) Total Operating Budget. Vancouver: BC Transit.

BC Transit (1997) Service Plan and Funding Strategy, Final Report. Vancouver: BC Transit.

Canadian Urban Transit Association (1980 to 1996, annual) Summary of Canadian Transit Statistics. Toronto: Canadian Urban Transit Association.

Canadian Urban Transit Association (1980 to 1996, annual) Canadian Transit Factbook: Operating Data for Individual Transit Systems. Toronto: Canadian Urban Transit Association.

Canadian Urban Transit Association (1991) The Implications of Demographic and Socioeconomic Trends for Urban Transit in Canada. Toronto: Canadian Urban Transit Association.

Canadian Urban Transit Association (1996) Summary of Provincial Funding Programs for Transit. Toronto: Canadian Urban Transit Association.

Canadian Urban Transit Association (1997). Prospects for Transit Funding. Toronto: Canadian Urban Transit Association.

Cervero, Robert (1986) "Urban Transit in Canada: Integration and Innovation at its Best," Transportation Quarterly, Vol. 40, No. 3, July 1986, pp. 293-316.

Cormier, Al (1996) "New Transit Agency for Montreal Region," CUTA Forum, February, pg. 17.

Downs, Anthony (1994) New Visions for Metropolitan America. Washington, D.C.: Brookings Institution.

Gad, Gunther (1991) "Office Location Dynamics in Toronto: Suburbanization and Central District Specialization." In Trudi Bunting and Pierre Filion (eds.), Canadian Cities in Transition (Toronto: Oxford University Press)

Garreau, Joel (1991) Edge Cities: Life on the New Frontier. New York: Doubleday.

Kenworthy, Jeffrey (1991) "The Land Use and Transit Connection in Toronto: Some Lessons for Australian Cities," The Australian Planner, Vol. 29, No. 3, September 1991, pp. 149-154.

Ketcham, Brian and Komanoff, Charles (1993) Win-Win Transportation: A No Losers Approach to Financing Transport in New York City and the Region. New York: Transportation Alternatives Press.

Littman, Todd (1994) Transport Cost Analysis: Techniques, Estimates, and Implications. Victoria: Transport Policy Institute.

London Transport (1996) London's Buses: A Decade of Change. London: London Transport Planning.

MacKenzie, James et al. (1992) The Going Rate: What It Really Costs to Drive. Washington, D.C.: World Resources Institute.

Miller, Peter and Moffet, John (1993) The Price of Mobility: Uncovering the Hidden Costs of Transportation. New York: National Resources Defense Council.

OC Transpo (1996) Operating Statistics, 1970-1996. Ottawa: Ottawa-Carleton Regional Transit Commission.

OC Transpo (1990 to 1996, annual) Annual Financial Report. Ottawa: Ottawa-Carleton Regional Transit Commission.

OC Transpo (1994) Strategic Plan for the 1990s, as Amended. Ottawa: Ottawa-Carleton Regional Transit Commission.

Office of Technology Assessment (1994) Saving Energy in U.S. Transportation. Washington, D.C.: U.S. Congress.

Perl, Anthony and Pucher, John (1995) "Transit in Trouble: The Policy Challenge Posed by Canada's Changing Urban Mobility," Canadian Public Policy, Vol. 21, No. 3, pp. 261-283.

Pucher, John (1994) "Canadian Public Transport: Recent Developments and Comparisons with the United States," Transportation Quarterly, Winter 1994, Vol. 48, No. 1, pp. 65-78.

Pucher, John and Clorer, Steffen (1992) "Taming the Automobile in Germany," Transportation Quarterly, Vol. 46, No. 3, July 1992, pp. 383-395.

Pucher, John and Kurth, Stefan (1995) "Making Transit Irresistible: Lessons from Europe," Transportation Quaterly, Vol. 49, No. 1, Winter 1995, pp. 117-128.

Pucher, John (1995) "Urban Passenger Transport in the United States and Europe: A Comparative Analysis of Public Policies," Transport Reviews, Vol. 15, No. 2, pp. 89-107, and Vol. 15, No. 3, pp. 261-277.

Schimek, Paul (1996) "Automobile and Public Transit Use in the United States and Canada: Comparisons of Postwar Trends," Transportation Research Record, No. 1521, pp. 3-11.

Soberman, Richard (1983) "Urban Transportation in the U.S. and Canada: A Canadian Perspective," Logistics and Transportation Review, Vol. 19, No. 2, pp. 99-109.

Soberman, Richard (1997) "Rethinking Urban Transportation: Lessons from Toronto," paper presented to the Transportation Research Board, Annual Meetings, Washington, D.C., January 15, 1997, pp. 21.

Societe de Transport de la Communaute Urbaine de Montreal (1980 to 1996, annual). Annual Report. Montreal: STCUM

Statistics Canada (1996) Canada Yearbook. Ottawa: Statistics Canada.

Toronto Transit Commission (1980 to 1996, annual) Operating Budget. Toronto: Toronto Transit Commission.

Toronto Transit Commission (1980 to 1996, annual) Annual Report. Toronto: Toronto Transit Commission.

Wachs, Martin (1981) "Pricing Urban Transportation: A Critique of Current Policy," Journal of the American Planning Association, Vol. 47, No. 3, pp. 243-251.

ACKNOWLEDGEMENTS

The author would like to thank the Canadian Studies Program of the Canadian Embassy in Washington, D.C. for providing financial support for the research project "New Perspectives for Rejuvenating Canadian Urban Transit", which the author directed from February 15, 1996 to February 15, 1997. Even more essential than that financial support were the extensive information, contacts, and advice provided by the Canadian Urban Transit Association in Toronto. Similarly, the individual case study transit systems in Vancouver and Victoria (BC Transit), Calgary (Calgary Transit), Ottawa (OC Transpo), Toronto (TTC), Montreal (STCUM), and Quebec City (STCUQ) granted extensive interviews and sent voluminous information used in the research project. Finally, the Research Unit for Public Policy Studies of the University of Calgary aided in the initial phase of the research, in particular with the Calgary, Vancouver, and Victoria case studies.

Table 1. Annual Public Transport Ridership in Selected Canadian Cities, 1980 to 1995
(in millions of revenue passenger trips)

Metro area	1980	1985	1990	1991	1992	1993	1994	1995	1996
Toronto	366.4	432.2	459.2	424.2	404.3	393.5	388.3	388.2	372.0
Montreal	314.1	372.1	386.4	348.1	336.4	336.0	339.5	335.6	333.5
Vancouver	96.7	93.0	107.1	104.2	106.1	104.5	110.4	117.5	123.1
Ottawa	74.2	85.0	80.7	79.2	78.6	76.1	73.3	71.7	(b) 64.8
Calgary	52.4	48.6	50.8	47.9	53.9	53.3	53.9	56.3	n.a.
Quebec	28.6	39.1	39.1	38.3	37.2	37.0	32.6	32.7	n.a.
Victoria	12.9	13.4	14.4	15.3	15.6	16.0	16.9	17.0	n.a.
Canada, total(a)	1,315	1,434	1,529	1,450	1,402	1,370	1,353	1,355	n.a.

Note: (a) Canada total reflects sum for all Canadian transit systems, not only the seven systems listed in the table.
(b) Most of the decline in Ottawa between 1995 and 1996 was due to a 24-day strike in 1996. Without that strike, OC Transport estimates that ridership would only have fallen by 0.4%, to 71.5 million.
Source: Canadian Urban Transit Association and individual transit agencies in each city.

Table 2. Public Transport Ridership per Capita in Selected Canadian Cities, 1980 to 1995
(trips per person per year)

Metro area	1980	1985	1990	1991	1992	1993	1994	1995
Toronto	173	202	215	186	178	173	171	171
Montreal	159	197	221	196	189	189	189	187
Vancouver	86	87	82	80	76	73	74	77
Ottawa	152	158	138	133	130	123	117	113
Calgary	93	78	73	68	75	73	73	75
Quebec	63	89	89	80	77	77	67	67
Victoria	56	61	65	66	56	56	54	54
Canada, total (a)	97	101	104	96	88	85	85	84

Note: (a) Canada total reflects average of all Canadian transit systems, not only the seven listed in table.
Source: Canadian Urban Transit Association and individual transit agencies in each city.

Table 3. Vehicle Kilometers of Public Transport Service Supplied, 1980 to 1995
(in millions of vehicle km)

Metro area	1980	1985	1990	1991	1992	1993	1994	1995
Toronto	165	187	197	190	185	180	181	180
Montreal	140	149	144	139	141	143	144	142
Vancouver	54	54	71	77	79	82	83	85
Ottawa	45	50	51	51	52	50	50	49
Calgary	26	30	34	35	36	32	33	35
Quebec	18	22	23	23	21	21	20	21
Victoria	6	8	8	9	10	10	11	11
Canada, total (a)	682	715	784	779	772	778	778	783

Note: (a) Canada total reflects average of all Canadian transit systems, not only the seven listed in table.
Source: Canadian Urban Transit Association and individual transit agencies in each city.

Table 4. Vehicle Hours of Public Transport Service Supplied, 1980 to 1995
(in millions of vehicle hours)

Metro area	1980	1985	1990	1991	1992	1993	1994	1995
Toronto	7.2	8.3	8.8	8.5	8.3	8.0	8.0	8.1
Montreal	7.1	7.2	7.2	7.0	5.9	6.0	6.0	6.0
Vancouver	2.7	2.6	3.1	3.3	3.4	3.5	3.6	3.7
Ottawa	1.8	2.2	1.7	1.7	1.7	1.6	1.6	1.6
Calgary	1.3	1.2	1.3	1.2	1.4	1.3	1.3	1.4
Quebec	1.1	1.1	1.1	1.1	1.0	1.0	0.9	1.0
Victoria	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Canada, total (a)	30.0	32.0	33.3	33.3	32.7	32.4	32.2	31.7

Note: (a) Canada total reflects average of all Canadian transit systems, not only the seven listed in table.
Source: Canadian Urban Transit Association and individual transit agencies in each city.

Table 5. Changes in Public Transport Service Supply
(percentage change in vehicle km and vehicle hours of service)

Metro area	Vehicle km of service		Vehicle hours of service	
	1980-1990	1990-1995	1980-1990	1990-1995
Toronto	+19	-9	+22	-8
Montreal	+3	-1	+1	-1
Vancouver	+32	+20	+15	+19
Ottawa	+13	-4	-6	-6
Calgary	+29	+3	+0	+8
Quebec	+27	-9	+0	-9
Victoria	+30	+38	+33	+25
Canada, total (a)	+15	+0	+11	-5

Notes: (a) Canada total includes all cities, not only those listed in table
Source: Canadian Urban Transit Association and individual transit systems in each city

Table 6. Trends in Average Public Transport Fares, 1980 to 1995
(in constant 1995 Canadian dollars)

Metro area	1980	1985	1990	1991	1992	1993	1994	1995
Toronto	.91	.92	1.03	1.14	1.08	1.10	1.11	1.12
Montreal	.77	.69	.65	.72	.75	.78	.78	.78
Vancouver	.81	1.00	1.07	1.02	.98	1.01	1.33	1.29
Ottawa	.75	.90	1.03	1.02	1.06	1.08	1.13	1.10
Calgary	.81	.90	.96	1.06	.93	.93	.94	.79
Quebec	.77	.79	.80	.80	.80	.81	.84	.82
Victoria	.71	.87	.69	.69	.88	.89	.99	1.00
Canada, total	.89	.93	.97	1.03	1.02	1.05	1.07	1.07

Note: Average fare is defined as total passenger fare revenues divided by total passenger trips in a given year.
Source: Canadian Urban Transit Association

Table 7. Comparison of Relative Price Changes and Transit Ridership in Canada, 1980 to 1995

Time Period	Overall CPI Price Increase for all Goods	Percent Growth in Auto Operating Costs	Percent Growth in Urban Transit Fares	Percent Change in Transit Ridership
1980-1990	+77.8	+108.4	+113.1	+16.3
1990-1995	+11.7	+12.2	+34.5	-11.4
1990-1991	+5.6	+2.9	+8.1	-5.2
1991-1992	+1.5	+0.2	+13.7	-3.3
1992-1993	+1.8	+1.9	+4.5	-2.3
1993-1994	+0.2	+2.3	+1.6	-1.2
1994-1995	+2.1	+4.4	+3.1	+0.1

Source: Statistics Canada, Consumer Prices and Price Indices, Cat. No. 62-010, various years.

Table 8. Percentage of Operating Expenses Covered by Passenger Fares, 1980 to 1995

Metro area	1980	1985	1990	1991	1992	1993	1994	1995
Toronto	75	69	68	70	63	65	65	68
Montreal	46	47	40	46	45	46	47	48
Vancouver	39	48	54	51	49	51	52	52
Ottawa	60	59	58	56	56	57	58	54
Calgary	54	60	49	49	49	50	51	46
Quebec	43	48	41	40	42	44	44	41
Victoria	34	51	51	50	47	50	50	52
Canada, total	54	55	54	53	53	54	54	55

Note: (a) Canadian total is for all Canadian transit systems, not just the seven listed in table
Source: Canadian Urban Transit Association and invididual transit systems

Table 9. Trends in Unemployment Rates, 1980 to 1995
(percentage of labor force unemployed in each metropolitan region)

Metro area	1980	1985	1990	1991	1992	1993	1994	1995
Toronto	5.0	6.7	5.3	9.7	11.4	11.0	10.3	8.5
Montreal	8.8	11.7	10.2	12.3	13.2	13.7	12.5	11.3
Vancouver	5.3	13.2	7.1	8.4	9.3	9.3	9.0	8.3
Ottawa	7.7	8.3	5.9	7.3	8.8	8.4	8.2	9.8
Calgary	3.6	10.2	7.0	8.7	10.0	10.4	9.2	8.1
Quebec	9.0	8.6	7.6	9.5	11.4	11.2	11.3	10.3
Victoria	8.2	13.0	7.7	8.2	8.3	8.6	7.6	9.2
Canada, total (a)	7.5	10.5	8.1	10.4	11.3	11.2	10.4	9.5

Note: (a) Overall rate for all of Canada, not just the seven cities listed above.
Source: Historical Labour Force Statistics, 1995, Statistics Canada, Cat. 71-201; and Historical Labour Force Statistics 1990, Statistics Canada, Cat. 71-201.

Table 10. Selected Cost and Productivity Indices for Canadian Transit Industry in Aggregate

Index	1980	1985	1990	1991	1992	1993	1994	1995
Operating expense per vehicle hour (a)	72.1	75.0	82.7	83.0	84.2	85.4	85.8	85.7
Operating expense per vehicle km (a)	3.17	3.36	3.51	3.54	3.57	3.56	3.55	3.47
Operating expense per passenger (a)	1.65	1.67	1.80	1.85	1.96	2.02	2.04	2.01
Percent of operating expense covered by passenger revenues	54	55	54	53	53	54	54	55
Vehicle hours per employee hour	n.a.	n.a.	n.a.	n.a.	.56	.51	.49	.46
Vehicle kilometers per employee hour	n.a.	n.a.	n.a.	n.a.	13.1	12.3	11.8	11.3
Passenger trips per vehicle hour	43.8	44.8	45.9	43.5	42.9	42.3	42.0	42.7

Note: (a) Operating expenses have been converted to comparable, constant 1995 Canadian dollars by controlling for inflation and thus the declining value of the dollar over the 15-year period of this table. Increases in cost thus reflect growth in excess of inflation.
Source: Canadian Urban Transit Association.

Table 11. Public Transport Funding in Canada, 1970 to 1995 (in Canadian Dollars)

	1980	1985	1990	1991	1992	1995
Operating subsidy as percentage of operating costs	46	45	46	47	47	45
Total operating subsidy (millions of current dollars)	534	748	1,507	1,557	1,619	1,585
Total operating subsidy (millions of constant 1995 dollars)	1,068	1,069	1,693	1,656	1,686	1,585
Provincial share (%)	53	63	52	53	41	39
Local share (%)	47	37	46	46	56	58
Total capital subsidy (millions of current dollars)	196	323	504	469	513	689
Total capital subsidy (millions of constant 1995 dollars)	392	461	566	499	534	689
Provincial share (%)	89	63	65	60	51	48
Local share (%)	10	35	25	28	40	48

Sources: Canadian Urban Transit Association, as reported by its member systems.

Table 10. Selected Cost and Productivity Indices for Canadian Transit Industry in Aggregate

Index	1980	1985	1990	1991	1992	1993	1994	1995
Operating expense per vehicle hour (a)	72.1	75.0	82.7	83.0	84.2	85.4	85.8	85.7
Operating expense per vehicle km (a)	3.17	3.36	3.51	3.54	3.57	3.56	3.55	3.47
Operating expense per passenger (a)	1.65	1.67	1.80	1.85	1.96	2.02	2.04	2.01
Percent of operating expense covered by passenger revenues	54	55	54	53	53	54	54	55
Vehicle hours per employee hour	n.a.	n.a.	n.a.	n.a.	.56	.51	.49	.46
Vehicle kilometers per employee hour	n.a.	n.a.	n.a.	n.a.	13.1	12.3	11.8	11.3
Passenger trips per vehicle hour	43.8	44.8	45.9	43.5	42.9	42.3	42.0	42.7

Note: (a) Operating expenses have been converted to comparable, constant 1995 Canadian dollars by controlling for inflation and thus the declining value of the dollar over the 15-year period of this table. Increases in cost thus reflect growth in excess of inflation.
Source: Canadian Urban Transit Association.

of operating costs — Percentage	46	45	1990 46	1991 47	1992 47	1995 45
Total operating subsidy (millions of current dollars)	534	748	1,507	1,557	1,619	1,585
Total operating subsidy (millions of constant 1995 dollars)	1,068	1,069	1,693	1,656	1,686	1,585
Provincial share (%)	53	63	52	53	41	39
Local share (%)	47	37	46	46	56	58
Total capital subsidy (millions of current dollars)	196	323	504	469	513	689
Total capital subsidy (millions of constant 1995 dollars)	392	461	566	499	534	689
Provincial share (%)	89	63	65	60	51	48
Local share (%)	10	35	25	28	40	48

Sources: Canadian Urban Transit Association, as reported by its member systems.

Saskatchewan			
Yukon	.28	100	

Notes: (a) Cities have the option of using a part of their municipal services block grant from the Province of ... transport, but there is no categorical assistance earmarked exclusively for transit operating subsidy. Moreover, both Calgary and Edmonton, the two largest cities, were phased out of the province's operating assistance starting in 1994.
(b) Actual subsidy received from the Province of Ontario is based on target revenue/cost ratios, which vary by size of city. Moreover, in both 1995 and 1996, the province capped operating subsidies at levels below scheduled amounts. Finally, it should be noted that Ontario has just decided (in January 1997) to completely enliminate all provincial operating subsidies ... thereafter.

Table 14. Subsidies per Passenger Trip in the Four Largest Canadian Transit Systems (total operating and capital subsidy in current Canadian dollars)

	1980	1985	1990	1995	1996	1997
Toronto	.34	.72	.73	1.22	1.55	1.65
Montreal	.45	.61	.98	1.32	1.23	1.22
Vancouver	.93	1.68	2.30	3.07	3.05	3.11
Ottawa	.35	.61	.86	1.13	1.25	1.24

Source: Calculated from Tables 1 and 13.