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Employer Provided Transit Passes: A Tax Exempt Benefit

Benefit/Cost Analysis

28 January 1997

by
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for
The Transit Advocacy Project of Transport 2000 Canada

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Executive Summary.

This report investigates a proposal to make employer contributions toward employee transit commuting expenditures exempt from Canadian income tax. It describes this proposal, discusses the context in which it has been recommended, estimates its impacts on travel and resulting benefits and costs, and investigates potential barriers and problems.

This proposal has been recommended by many organizations representing transportation professionals, public officials, environmental agencies, transit users, and a number of other interests. It would be relatively easy to implement, either as a change in the tax code or as a change in administrative policy. Most other industrialized countries have tax policies that provide such exemptions.

Context

Public transit provides a number of benefits to society. This is particularly true when public transit replaces automobile travel for urban commuting, due to the high costs of accommodating growing urban peak period vehicle traffic. Because of these potential benefits, many local, regional, provincial and national organizations advocate policies that encourage transit commuting.

Current trends in Canada, however, indicate a reduction in transit commuting. This reduction in transit use and resulting increase in peak-period automobile travel is exacerbating a number of problems facing society: traffic congestion, roadway and parking facility costs, petroleum consumption, air pollution, urban sprawl and a degradation of the urban environment.

Why are commuters riding transit less and driving more? Most commuters have little incentive to ride transit. Although the cost of owning an automobile is high, the perceived variable cost of operating an automobile is low and declining in real terms. Transit fares, on the other hand, have increased in real terms. A typical commuter who owns an automobile and receives free, untaxed (for income tax) parking at their worksite pays approximately the same to drive as to ride a bus. This price structure encourages automobile use, despite the potential benefits of alternative modes, such as transit.

An important component of this price structure is the common practice by employers of providing free or subsidized parking to their employees. This benefit is quite valuable; it is typically worth an estimated $1,772 annually in average pre-tax income for an urban employee, including $1,200 in direct costs and $572 in effective tax exemptions, as indicated in Table ES-1. Employers provide this benefit because employees value it more than they would the same compensation in wages, since it is untaxed. That parking is effectively tax exempt, therefore, leverages a much larger benefit to automobile users than its direct value.

Table ES-1 **Automobile and Transit Incentives Compared**

Policies	Automobile Benefits		Transit Benefits		Net Financial Incentive	
Actual Current Policy (Free, tax exempt parking, no transit benefit)	Parking benefit GST avoided Tax exemption Total benefit	$1,200 84 488 $1,772	Transit benefit GST exemption Tax exemption Total benefit	$0 46 0 $ 46	Auto benefit Transit benefit Auto advantage	$1,772 - 46 $1,726
Official Policy (Free, taxed parking, no transit benefit)	Parking Benefit GST avoided Tax exemption Total benefit	$1,200 84 0 $1,284	Transit benefit GST exemption Tax exemption Total benefit	$0 46 0 $ 46	Auto benefit Transit benefit Auto advantage	$1,284 - 46 $1,238
Transit Benefit Proposal (Free, tax exempt parking and transit benefits)	Parking benefit GST avoided Tax exemption Total benefit	$1,200 84 488 $1,772	Transit benefit GST exemption Tax exemption Total benefit	$660 46 268 $ 974	Auto benefit Transit benefit Auto advantage	$1,772 - 974 $ 798

Untaxed parking benefits but no transit benefits result in a $1,726 annual financial incentive for automobile over transit commuting.

Commuters who use alternative modes such as transit receive no such benefits. Transit commuters are therefore relatively worse off than automobile commuters in terms of their total benefits. This bias in tax law, and the bias in employer benefits that results, contradicts efforts to encourage more efficient travel patterns. It is also unfair, both because it favors drivers over transit riders (horizontal inequity), and because transit riders tend to be economically and physically disadvantaged relative to drivers (vertical inequity).

Although Revenue Canada ostensibly collects taxes on parking benefits, it provides exemptions under which the majority of employees qualify. Parking benefit tax revenue could increase by more than an order of magnitude and automobile commuters would still receive more average tax benefit than transit commuters would receive under this proposal. For this reason, making transit benefits tax exempt is justified even if Revenue Canada plans to significantly increase the collection of taxes on parking benefits.

Convincing commuters who currently drive to shift modes to transit is a critical objective for achieving many local, provincial and federal transportation, social and environmental goals. The proposed employee transit tax exemption is one of the few financial instruments available to support transportation demand management efforts, and one of the easiest to implement. It has been widely recommended by a variety of interests to help address a number of economic and environmental problems.

This proposal is an example of using government fiscal policy to achieve environmental and social goals. Considerable economic theory supports the concept that taxes should be higher on goods that impose social costs and lower on goods that provide social benefits.

Estimated Travel Impacts

A spreadsheet model was developed to help predict travel impacts, costs and benefits for 25 years after implementation of this proposal under various scenarios. Table ES-2 summarizes input values used in this model. Additional sensitivity analysis was performed using "Lower Bound" estimates of impacts and benefits. These did not significantly change results.

Table ES-2 **Summary of Assumptions Used in Analysis Model**

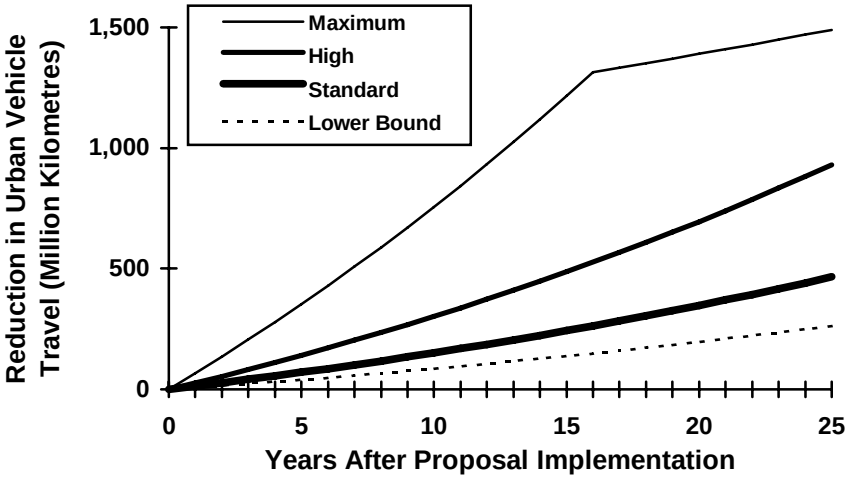
Definition	CBD	Outside CBD	Total Urban Area
Portion of total urban employment.	20%	80%	100%
Current automobile mode split	40%	80%	72%
Current transit mode split	40%	10%	16%
Rideshare, bicycle and walk mode split	20%	10%	12%
Peak period travel as portion of total travel.	35%	35%	35%
Commuting as portion of peak period travel.	90%	70%	74%
Average auto/transit commute distance (km).	12	12	12
Annual growth in urban-peak vehicle travel.	1.0%	1.5%	1.4%
Annual growth in program Coverage (portion of employees offered transit benefits), *High*.	2.0%	2.0%	2.0%
Annual growth in program Coverage (portion of employees offered transit benefits), *Standard*.	1.0%	1.0%	1.0%
Recipients (portion of employees offered transit benefits who accept them).	60%	15%	24%
Mode shift (auto travel reduction among recipients as a portion of total commute trips).	14%	21%	19.7%

This table summarizes assumptions used to estimate reductions in automobile travel that is likely to result if transit subsides are made tax exempt.

Experience indicates that the portion of commuters offered transit benefits by their employers (called "coverage" in this report) would increase at approximately 1 percentage point of total employment annually if promoted by transit agencies. Higher growth rates are possible if transit benefit promotion is part of an effective transportation demand management program. Only a portion of employees offered transit benefits will accept them and become "recipients." Experience indicates that 10-30% of these recipients' automobile commute trips shift to transit, representing a 5-20% reduction in automobile commuting among employees offered this benefit.

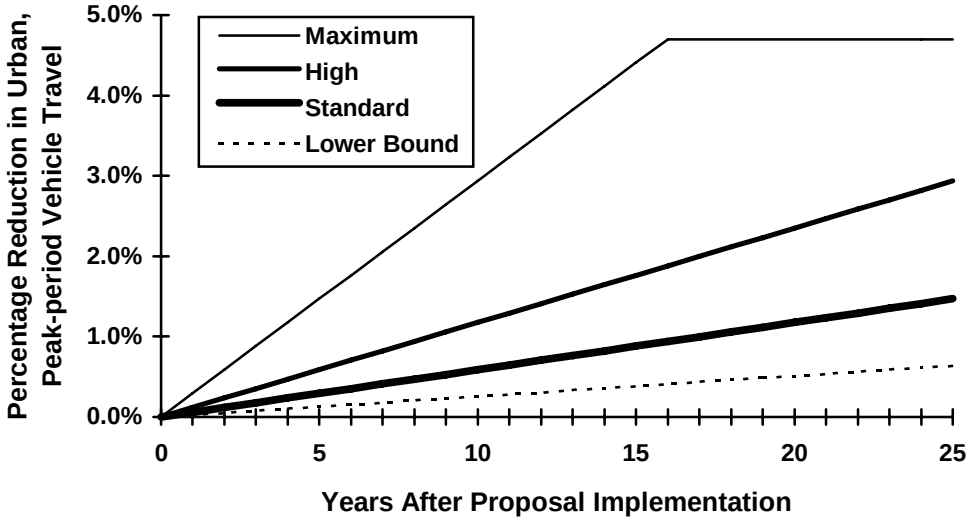
Figure ES-1 illustrates the expected reduction in urban commute travel from this proposal. This indicates small impacts over the first few years, but continued growth. Figure ES-2 illustrates this impact as a percentage of total urban peak automobile travel. This indicates that under the "High" coverage scenario (aggressive promotion as part of local TDM efforts), travel reductions would exceed 1% of total peak vehicle travel within a decade, and 2% within two decades.

Figure ES-1 **Total Urban Automobile Travel Reduction**



This graph illustrates the proposal's total travel impacts in millions of kilometres reduced in Canadian cities with populations greater than 100,000.

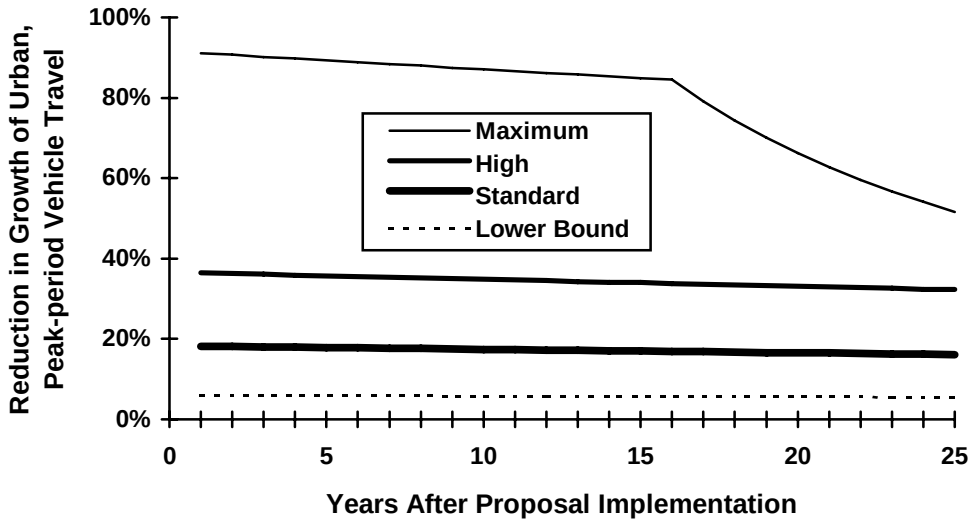
Figure ES-2 **Estimated Urban Peak Travel Impacts**



This graph illustrates the proposal's travel impacts as a portion of total peak period vehicle traffic based on assumptions described above.

These reductions in peak period vehicle travel will not be visible in most urban areas due to traffic growth, and latent demand which tends to fill available road capacity. However, this proposal would reduce the *growth* in vehicle travel and traffic congestion, allowing capacity expansion projects to be deferred or avoided. Figure ES-3 illustrates vehicle travel reductions as a percentage of anticipated central business district (CBD) traffic growth.

Figure ES-3 **Percentage of CBD Traffic Growth Avoided**



This graph illustrates the proposal's travel impacts as a portion of peak period CBD vehicle traffic growth.

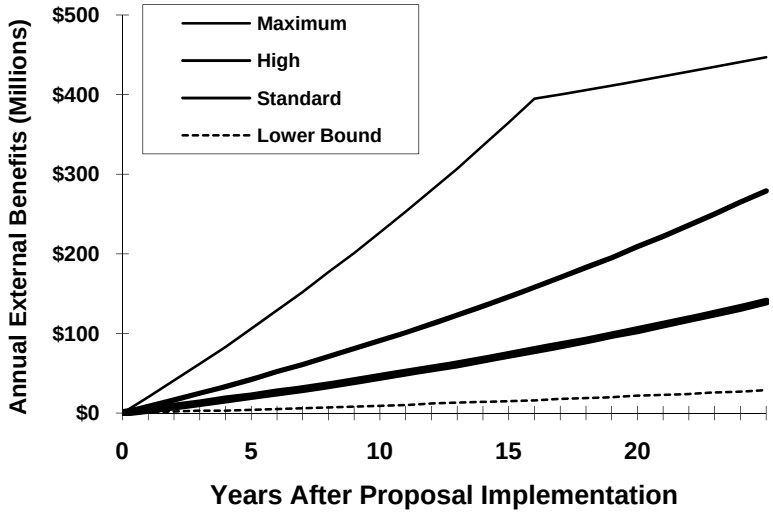
This analysis indicates that the proposal could reduce a significant portion of expected growth in traffic if implemented as part of an effective, comprehensive transportation demand management program. These impacts would be greatest under conditions where the benefits are greatest: peak period travel in large urban areas.

Table ES-3 **Estimated Travel Impacts (Assumes High Coverage Growth)**

	5 years	10 years	20 years
Urban, peak-period vehicle travel reduction (million km)	141	302	932
Percentage reduction in urban, peak-period vehicle travel.	0.6%	1.2%	3.0%
Percentage reduction in peak-period, Central Business District vehicle travel growth.	36%	35%	32%

The resulting reduction in automobile travel would provide a number of benefits to business, employees and society, including reduced traffic congestion, roadway and parking cost savings, energy savings, reduced air emissions, increased road safety, increased revenue for transit agencies, financial savings to working households, and more choice for individual commuters. The estimated monetized value of these benefits totals tens of millions of dollars during the first decade of implementation, and much more over the longer term, as indicated in Figure ES-4.

Figure ES-4 **Estimated Annual External Benefits**



External benefits (benefits to other road users and the rest of society) of this proposal are estimated to total many millions of dollars annually. These include reduced congestion, parking costs, roadway expense, accidents, and a variety of environmental benefits.

In the U.S., transit expenditures among recipients increased an average of 23%, averaging $13.75 in current Canadian dollars or $165 per year. This revenue increase is about three times larger than the estimated reduction in income tax revenue. Since transit service experiences economies of scale, increased transit use often provides net revenue to transit agencies, allowing greater service or reduced subsidies. Expenditures on public transit produce significantly more domestic employment than the same money spent on automobile travel. This proposal should therefore increase Canadian employment and economic development to the degree that it shifts expenditures from auto to transit.

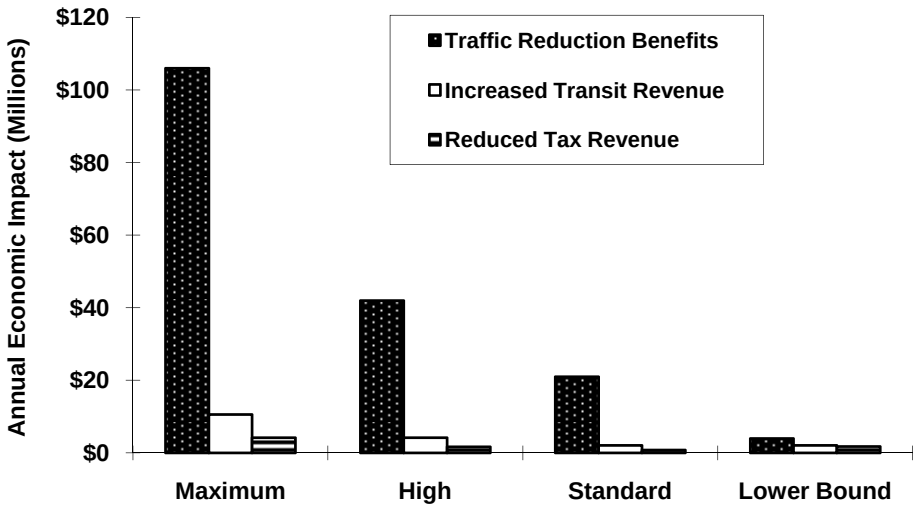
Potential Problems and Barriers

No significant barriers to this proposal have been identified. The only true costs are minor transition costs associated with any policy change. These are small in magnitude, particularly when compared with total benefits. Unlike many other transportation improvement strategies, there are no ongoing program costs or spillover effects identified.

One concern is a possible reduction in tax revenue if tax exempt transit benefits substitute for taxable wages. This is found to be small for the short and medium term, in part because the number of employees offered transit benefits is likely to be small over this time period, and because transit benefits would partly displace effectively tax exempt parking costs. Tax revenue reductions are actually economic transfers rather than resource costs, and so are circulated back into the economy. Parking cost reductions, on the other hand, represent true resource cost savings, providing economic productivity benefits to society.

At any level of program coverage, estimated revenue reductions from this proposal are approximately half of estimated increase in transit agency revenue, and are an order of magnitude smaller than the estimated monetized benefits associated with reductions in urban peak automobile travel, as illustrated in Figure ES-5.

Figure ES-5 **Economic Impacts Compared**



The benefits to society of reduced urban peak automobile travel and increased transit agency revenue are many times larger than the expected reduction in tax revenue.

These results indicate that this analysis is highly robust. Even using an unrealistically low "Lower Bound" estimate of travel impacts and benefits, net benefits are more than twice the reduction in income tax revenue. More likely this analysis *underestimates* full benefits by using low estimates of urban traffic growth, and by not accounting for additional benefits from reductions in non-commute travel.

The objection that tax exempt transit benefits would be unfair (horizontally inequitable) to commuters who are not offered them or cannot use transit has little apparent merit. Many tax policies, including several tax exemptions recently announced by Revenue Canada, provide benefits that are unavailable to most tax payers. Although in the short term most people would be unable to use transit benefits, most commuters would eventually be able to use them sometime during their working lives. This proposal would significantly increase horizontal equity by providing transit commuters with benefits comparable to what automobile commuters receive, and vertical equity by benefiting a population that includes many economically and physically disadvantaged people.

It is virtually impossible for local transit encouragement efforts to substitute for this proposal. Virtually any travel demand management program would increase its mode shift 10-30% among employees offered this benefit. Failing to offer transit tax exemptions, therefore, significantly reduces the effectiveness of other demand management efforts.

I. Introduction.

Context, Goals and Scope of This Study.
The economic efficiency of a free market is based on consumer choice and correct pricing. The common practice by employers of providing free or underpriced parking to employees who drive, but no comparable benefit to those who do not drive, is a market distortion. This bias toward driving reduces commuter choice and increases automobile use at the expense of other travel options. One of the main reasons that employers provide parking benefits is because they are usually untaxed, and so are worth significantly more than their cash value. Since transit benefits are not income tax exempt, they are not offered by employers.

Shifting travel from automobile to transit, particularly under urban, peak period conditions, reduces many costs to society. As a result, transit encouragement is an objective of many local, provincial and federal policies. These efforts have not been very successful in Canada, in part because most individuals perceive little incentive to ride transit rather than drive.

This study examines the likely impacts of changing Canadian federal income tax law to exempt transit benefits provided to employees for commuting purposes. Such an exemption has been recommended by government agencies, environmental organizations, municipal organizations, transportation professional organizations, and the transit industry. The following issues are examined:

1. The present status of public transit in Canada and factors which influence transit use.
2. The impact a transit tax exemption would have on travel behavior.
3. The net benefits of the expected shift from driving to transit commuting.
4. Barriers and problems associated with the implementation of this proposal.

A draft of this report (dated 30 December 1996) was circulated to more than 50 interested individuals and agencies, and a workshop was held on 14 December, 1996 with more than two dozen participants. In response to feedback from this process, additional sensitivity analysis has been added using alternative estimates of urban parking costs, mode shift elasticities, frequency of employee parking subsidy, and benefits of reduced automobile traffic. These lower values are used to produce a “Lower Bound” estimate of impacts which have been incorporated into analyses.

II. Problems With Current Commuter Benefits

Current federal tax treatment of commute transportation benefits is biased toward driving. Although federal tax law ostensibly requires employees who use parking facilities subsidized by their employers to declare the value as a taxable benefit, Revenue Canada offers exemptions under which most employees qualify.[1] As a result, parking benefits are worth significantly more to automobile commuters than their value in wages. Abundant parking is also required by most local zoning laws. Because of these incentives, parking benefits are a common and attractive employee benefit.

Employees who use free parking receive a total average benefit estimated at $1,772 annually (this is the extra pre-tax income an employee would need to purchase the parking themselves). Since employee transit benefits are currently fully taxable, employers have no incentive to provide them. As a result, most employees are offered parking benefits but virtually none receive transit benefits. This represents a significant incentive to drive rather than commute by transit (more detailed cost analysis is provided later in this report).

From a theoretical perspective (ignoring differences in external costs between the two modes), a "first-best" strategy for addressing this bias would be to charge full taxes on all automobile parking. However, this is currently impractical for technical and political reasons. A "second-best" strategy would be to provide comparable tax exemptions to other modes. Such a benefit is additionally justified because alternative modes reduce external costs (such as congestion and pollution) compared to driving, and for the sake of vertical equity, since non-drivers tend to be economically and physically disadvantaged relative to average drivers. For these reasons, many transportation professionals advocate that alternative modes should receive *more* favorable treatment than automobile use.[2]

III. Transit Benefit Tax Exemption Proposal

The proposal considered in this report is to amend the Income Tax Act so that employer contributions toward employee transit commuting expenses are not treated as a taxable benefit. Alternatively, the same effect could be achieved by the Ministry of Finance at the administrative level by publishing a statement in its *Regulations and Interpretation Bulletin*. In either case, employers could pay some or all of the cost of an employee's transit commuting expenses without listing them on employees' T.4 tax form as taxable benefits, and employees would pay no income tax on them.[3]

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[1] These exemptions are: 1) when the employee is not assigned a designated parking space; or 2) when the fair market value of the parking space is not readily determinable. See Appendix 3 for specific wording.

[2] For example, *A New Vision of Urban Transportation*, Transportation Association of Canada (Ottawa), March 1993.

[3] There are several possible variations on this proposal. One is to define a "de minimus" level under which transit benefits are exempt. This could be in the $20-$35 range. Another, called "Parking Cash-Out" is to require employers who provide free or subsidized employee parking to offer cash payments or transit benefits as an alternative to those employees who do not drive. These alternative benefit would either be taxable or non-taxable depending on federal law.

This proposal is endorsed by the Canadian Urban Transit Association, the Federation of Canadian Municipalities, the Transportation Association of Canada, the House of Commons Standing Committee on the Environment and Sustainable Development, the National Round Table on Environment and Economy, the Climate Change Task Group of the National Air Issues Co-ordinating Committee, and many transportation planners.[4] It is cited by the Canadian Energy Research Institute as an important TDM strategy.[5] It is also implied in the Liberal Party's platform.[6]

Making transit benefits tax exempt "leverages" a much greater value by giving employers an incentive to offer such benefits. A typical transit benefit would total $480 per year, plus $182 in tax exemptions, for a total benefit of $662.[7] Experience in other countries indicates that many employers would offer transit benefits if they are tax exempt, and that this is an effective strategy for increasing transit commuting, particularly in communities that develop other incentives for transit use. For this reason, transit benefits are tax exempt in most other developed countries. Several European countries provide tax credits to employers or employees for transit pass purchases. U.S. income tax law exempts up to $65 per month (about $88 Canadian) worth of employee transit benefits.

Transit benefits can take various forms. Employers could give free monthly transit passes, tickets, tokens or transit fare vouchers, or sell them at a discount. This exemption would apply to any form of public transit, including bus, rail, ferries and formal van pools, but not car pools. In the U.S., transit benefits typically average US$20-30 per month or about half the full price of a transit pass. Employers typically offer transit benefits to any employee who agrees to commute by transit at least a few days a month.

As a result of the transit benefit tax exemption, transit voucher programs are being established in many U.S. cities. Transit vouchers are produced by transit agencies or independent firms. They are equivalent to a money order or check that can only be used for purchasing transit passes or tickets. For example, an employee might receive a $30 voucher with his or her monthly paycheck. They pay the balance (perhaps another $30) to purchase passes or tickets from any local transit agency. These programs are popular because they minimize employers' administrative costs, and they allow one instrument to be used in areas with multiple transit companies.

Exempting transit benefits from income tax can provide the following benefits:

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[4] *Taxation of Transit Passes*, Canadian Urban Transit Association and the Federation of Canadian Municipalities, 1993; *A New Vision of Urban Transportation*, Transportation Association of Canada (Ottawa), March 1993; *A Strategy for Sustainable Transportation In Ontario*, National Round Table on the Environment and Economy, November 1995, p. 20; *Measures for Canada's National Action Program on Climate Change*, Climate Change Task Group of the National Air Issues Co-ordinating Committee, June 1994; Transport Concepts, *State of Transportation Demand Management Plans in Canadian Urban Areas*, Environment Canada (Ottawa), March 1995, p. 8.

[5] Morgan MacRae, *Transportation Demand Management - A Policy Challenge*, Canadian Energy Research Institute (Calgary), August 1994, p. 180.

[6] *Creating Opportunity: The Liberal Plan for Canada*, the "Red Book," Liberal Party , 1993, p. 64.

[7] Assuming $40 monthly transit benefits and a 38% marginal tax rate.

1. *Increased equity* by providing a tax benefit to transit riders comparable to what most drivers enjoy in free parking. Since lower income commuters are more likely to ride transit than those with higher incomes, exempting transit benefits would increase both horizontally and vertically equity.

2. *Increased economic efficiency* by eliminating a market distortion. The current tax bias toward driving over other commute modes skews consumer decisions. If income taxes treated automobile and transit benefits equally, some commuters who currently drive would shift to riding transit because they would enjoy net benefits.

3. *Support for Transportation Demand Management—Reduced transportation related problems*. Shifting peak period travel from automobile to transit supports TDM objectives established by local, provincial and federal agencies and organizations. This reduces transportation related problems including traffic and parking congestion, facility costs, pollution, accidents and growing energy consumption.

4. *Employer savings and increased flexibility*, by providing a less expensive alternative to parking benefits. Employees who accept a transit pass as an alternative to a parking space save their employer an estimated $720 per year.[8] Employers can use transit benefits to reduce their parking facility leasing expenses, free up employee parking for customer parking or storage, to convert the land to other uses.

5. *Increased economic development and employment.* Because transit costs less per unit of travel and provides more Canadian jobs for a given expenditure, a shift from driving to transit can increase economic productivity and employment.

6. *Increased transit system efficiency.* Since there are economies of scale in the provision of transit service, increasing transit use increases productivity, reducing costs to transit users and drivers, and reducing the need to subsidize transit service in order to maintain basic mobility for non-drivers.

7. *Reduced urban sprawl.* The current bias in favor of driving over alternative travel modes encourages automobile oriented land use patterns such as urban sprawl. Employers perceive automobile oriented suburban locations to be relatively cheaper than transit oriented urban locations because drivers receive favorable tax benefits.

8. *Reduced stress and increased job satisfaction and productivity.* Surveys of employees who receive transit benefits indicates that many enjoy reduced stress, which increases their productivity and reduces their job turnover.[9]

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[8] Assuming $40 monthly transit benefits, $100 per month parking costs.

[9] A third of transit voucher users reported reduced stress or improved job satisfaction, and increased productivity and on-time arrival were also noted in a survey reported in *Impact of the Bay Area Commuter Check Program*, Metropolitan Transportation Commission (0akland), 1995.

IV. Environmental, Social and Political Context

Using Price and Tax Policy to Achieve Environmental and Social Goals
This proposal is an example of the increasingly common strategy of using government fiscal policy to achieve environmental and social goals. Considerable economic theory supports the concept that taxes should reflect "external" impacts. Thus, taxes should be higher on goods that impose greater external costs, and lower taxes or subsidies are justified on goods that provide external benefits.

A number of Canadian taxes have been adjusted to help achieve social goals, including increased taxes on cigarettes, alcohol and gambling, in part to discourage these activities. The federal government has also adjusted taxes to help achieve environmental goals, including tax deductions to mining corporations for land reclamation costs, favorable tax rates to corporations for alternative energy investments, and increased limits for contributions to environmental charities as part of developing a "Sustainable Budget.[10]

Federal tax measures to support sustainability tend to focus on changes in *production*, although changes in *consumption* often provide more total benefits. For example, by shifting to more efficient travel modes consumers provide environmental benefits by reducing the need to extract petroleum, and additional benefits in terms of reduced traffic congestion, accidents, road and parking facility costs.

Table 1 **Estimated CO_2 Emission Reductions From Shift to Transit**[11]

	Toronto	Montreal	Vancouver
1990 Annual Emissions (kilotonnes).	13,442	8,424	3,696
Emission savings from 5% mode shift to transit (kilotonnes, percent of total).	154 (1.14%)	103 (1.22%)	58 (1.57%)
Percent of target.	3%	1%	6.5%

A 5% shift in urban travel from driving to public transit would help achieve a city's CO_2 emission reduction goals.

Current trends indicate that Canada will not be able to meet its goal of stabilizing CO_2 emissions at 1990 levels by the year 2000 without concerted federal effort. Since urban transportation is one of the largest and fastest growing uses of fossil energy, reducing automobile travel growth is an important strategy for achieving this goal. Based on emission reduction targets published by Natural Resources Canada, a 5% shift from driving to transit represents 1% to 6.5% of target goals, as indicated in Table 1.

[10] *The Federal Government Response to the Eighth Report of the Standing Committee on Environment and Sustainable Development (Keeping A Promise: Towards a Sustainable Budget)*, Government of Canada, 1996.

[11] IBI, *Initiatives to Limit Transportation Energy Consumption and Emission in Canadian Cities*, Natural Resources Canada (Ottawa), 1994; CUTA, *Environmental Benefits of Transit*, April 1990.

Political Context
There is generally strong support for transit in Canada. A 1992 public survey found that almost three quarters of Canadians believe that more money should be spent on public transit, and that "*adjusting existing inequities in the funding and taxation of transit are the most viable options*."[12] There is also strong support for environmental protection and social equity. This indicates that this proposal should have support among citizens and most public officials.

Most voters are automobile users and benefit from parking tax exemptions, while only a minority are likely to perceive a benefit from transit benefits (particularly since currently no employers offer such a benefit). Experience in other jurisdictions indicates that there would be opposition to new automobile user charges, such as elimination of parking benefit income tax exemptions. Several automobile industry lobbying organizations have formed to protect automobile user benefits.[13]

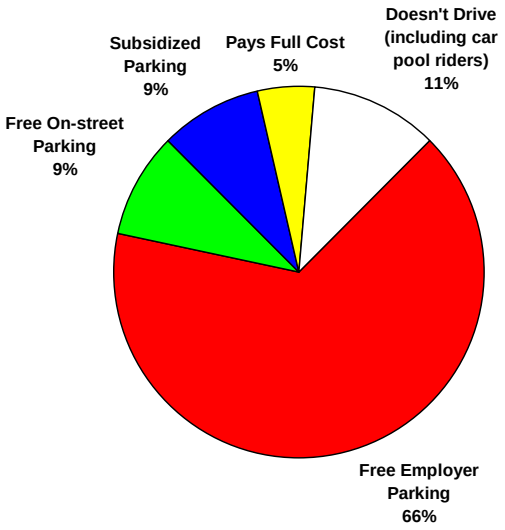
Although direct revenue losses from this proposal would be minimal (since it exempts a benefit that is currently not provided), the federal government is opposed to offering any new tax exemptions, both because of revenue shortages, and because it sets a precedent for similar requests.[14] Urban transportation, particularly urban transit, is not a federal responsibility in Canada, but falls under local and provincial jurisdictions.

V. Travel Behavior Issues

Parking Benefit Impacts on Commute Travel Behavior
Most employees who commute by automobile receive free or significantly subsidized parking, as indicated in Figure 1. Although these statistics are from the U.S., they are consistent with the findings of Canadian surveys of parking availability, use and costs. For example, according to a resent study, more than 55% of those surveyed in the Vancouver Region receive subsidized parking at work, representing about 85% of auto commuters.[15]

[12] UMA Engineering, *Modal Shift to Transit Study*, Canadian Urban Transit Association (Toronto), 1992, p. 57.
[13] These include the Canadian Automobile Association, and in British Columbia the Auto Tax Coalition.
[14] Letters by Honorable Paul Martin (Minister of Finance) to CUTA, 10 June 1994 and 16 June 1995.
[15] Urban Systems, *A Comprehensive Parking Management Strategy*, Greater Vancouver Regional District (Burnaby), April 1996, p. 63.

Figure 1 **U.S. Employee Parking Benefit Patterns**[16]



Most commuters who drive enjoy free or underpriced parking.

Free parking is so common that most drivers take it for granted and seldom consider it a cost of motor vehicle use. Yet it is costly. Providing employees with free parking is worth, on average, more than would be the value of free gasoline for commute trips.[17] Of course, nobody expects employers to pay fuel costs, and most people would recognize this as an inappropriate incentive that encourages inefficient commute habits, yet it has less impact than does the practice of providing employees with parking benefits.

Parking costs vary depending on land prices and construction standards. Surface parking spaces typically costs about $2,000+ per space to construct and require $50-150 per year in maintenance, indicating an annualized cost of $150 to $350 per space, excluding land costs.[18] Structured parking costs $10,000+ per space. One acre of land can hold about 125 parking spaces (less with landscaping), costing $8,000 per space if land prices average $1,000,000 per acre. A typical driver receives hundreds or even thousands of dollars per year worth of parking benefits.[19] A recent study estimates that the average cost of providing a parking space in the Vancouver Region (not just the CBD) is about $115 per month, including construction, maintenance and servicing expenses.[20] Table 2 and Figure 2 illustrate average estimated parking costs under various conditions.

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[16] Miller and Moffet, *The Price of Mobility*, National Resource Defense Council, Oct. 1993, p.24

[17] Donald Shoup, "Cashing Out Free Parking," *Transportation Quarterly*, Vol. 36, No. 3, July 1982, pp. 351-364.

[18] Robert Weant and Herbert Levinson, *Parking*, Eno Foundation (Westport), 1990.

[19] Richard Willson, "Suburban Parking Requirements: A Tacit Policy for Automobile Use and Sprawl," *Journal of the American Planning Association*, Vol. 61, No. 1, Winter 1995 p. 33.

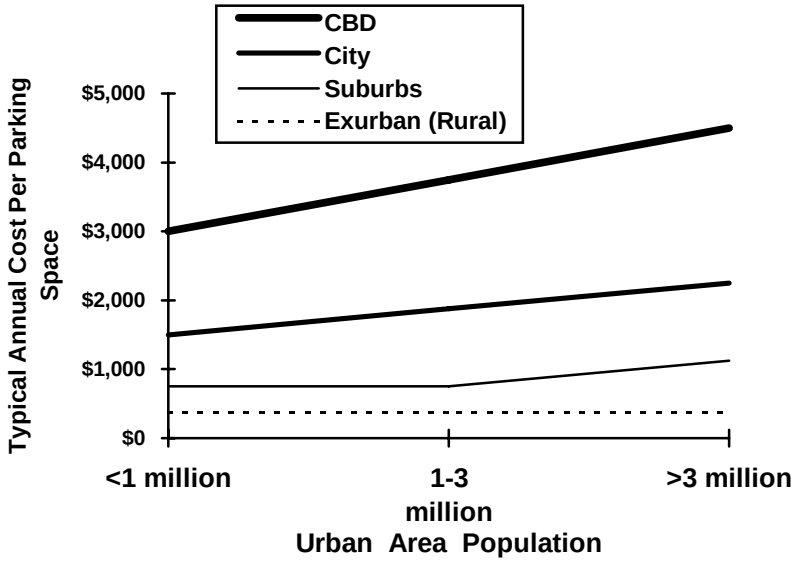
[20] Urban Systems, *A Comprehensive Parking Management Strategy*, Greater Vancouver Regional District (Burnaby), April 1996.

Table 2 **Estimate of Employee Parking Costs (1993 US$)**[21]

Location	Urban Population	Car Drivers	Avg. Daily Cost	Park Free
Units	Millions	Percent	U.S. Dollars	Percent
Rural	<50,000	100	1.00	100
Suburbs	Under 1	85	2.00	100
	1 to 3	80	2.00	100
	Over 3	67	3.00	100
City	Under 1	74	4.00	80
	1 to 3	72	5.00	80
	Over 3	60	6.00	70
CBD	Under 1	62	8.00	75
	1 to 3	58	10.00	75
	Over 3	49	12.00	65
Average		77	3.07	93

This table summarizes U.S. employee parking costs. Canadian costs are similar.

Figure 2 **Annual Cost Per Automobile Parking Space (1995 Canadian Dollars)**[22]



This figure illustrates typical annual parking costs, including both internal (driver) and external (employer or municipality) financial costs, but excluding environmental costs.

[21] Don Pickrell, "Eliminating Employer-Subsidized Parking" in *Climate Change Mitigation: Transportation Options*, National Transportation Research Centre (Cambridge), for USEPA, 1993.
[22] Based on the previous table, with costs annualized and converted to current Canadian dollars

These cost estimates may seem high because parking tends to be underpriced. There are a number of reasons for this. Charging for parking imposes transaction costs on both drivers (who often must carry the correct denomination, and prepay, which requires guessing the duration of each stop), and parking space owners (who must collect money and enforce parking regulations). Free parking is considered an effective way to attract customers, and is often used to compete for business. Free parking is a popular, and usually tax exempt employee benefit. Municipal governments prefer abundant off-street parking to avoid spillover problems and the need to enforce parking laws. Zoning laws require generous amounts of parking, and property taxes tend to favor parking as a land use. All of these factors discourage individual businesses from charging for parking.

Recent programs attempt to "level the playing field" between travel modes, or give an overall favorable advantage to transit because of its social benefits. According to economic theory, a "first best" solution would require automobile users to pay directly all costs resulting from their automobile use. This would include all parking facility costs, elimination of parking requirements in zoning codes, and taxing of parking comparable to other goods. However, there would be resistance to imposing such charges since most citizens would consider themselves worse off, at least in the short term. Many political groups are likely to fight any significant increase in automobile user charges or reductions in parking benefits. In addition, if parking is no longer free, some employees would simply park off-site, creating spillover parking problems while inducing no mode shift.

A second-best approach is to provide equal benefits for alternative travel modes. Although less ideal in theory, it is politically and technically easier. Transportation benefits are ultimately a transaction between employers and their employees, but they are significantly affected by government tax policies. Employers will not offer transit benefits unless they are tax exempt. For this reason, the U.S. and most European countries provide tax exemptions for employee transit benefits, and many TDM programs encourage employers to offer transit benefits and transportation allowances.

Current Mode Split

There are approximately 12.4 million workers in Canada, about 42% of the total population.[23] On a typical weekday, 9.1 million workers commute.[24] Table 3 shows mode split for various urban areas based on available travel surveys. This varies significantly from one area to another. For most urban regions as a whole, less than 15% of commute trips are currently made by transit. Transit commuting is more common for Central Business District (CBD) commutes, but these represent a minority of total employment and employment growth. For example, only 3% of AM peak hour vehicle travel in the Greater Vancouver area goes to the CBD, and another 7% goes to regional town centres, leaving 90% to other destinations. Because there are currently 5 to 10 automobile commuters for every transit commuter, each 1% overall shift from driving to transit represents a 5% to 10% increase in transit use.

[23] *Canadian Global Almanac*, 1996.

[24] Katherine Marshall, "Getting There," *Perspectives, Vol. 6, No. 2,* Statistics Canada, Summer 1994.

Table 3 **Mode Split In Selected Canadian Urban Areas**[25]

	Type of Trips	Auto Driver	Auto Pass.	Transit Rider	Bicycle/ Ped.
Calgary	Citywide AM Peak	66%	13%	18%	3%
Edmonton	Home Based Work	73%	8%	11%	8%
Edmonton	Regional AM Peak	47%	21%	13%	13%
Hamilton	CBD AM Peak Travel	63%	11%	16%	9%
Hamilton	Regional AM Peak Travel	65%	11%	10%	10%
London	Regional AM Peak Travel	53%	12%	17%	17%
Montreal	CBD AM Peak Travel	28%	9%	58%	3%
Montreal	Regional AM Peak Travel	42%	11%	27%	12%
Ottawa	CBD AM Peak Travel	40%	13%	31%	11%
Ottawa	Regional AM Peak Travel	63%	17%	10%	3%
Quebec	CBD AM Peak Travel	42%	17%	33%	7%
Quebec	Regional AM Peak Travel	47%	12%	19%	14%
Toronto	Downtown Work	30%	7%	58%	6%
Toronto	Regional Peak Hour	58%	11%	19%	9%
Vancouver	Citywide Peak Hour	65%	17%	13%	5%
Vancouver	Downtown Work	44%	11%	36%	10%
Victoria	Citywide Peak Hour (excludes walk trips)	65%	24%	6%	5% (bikes only)
Canada	Commuters	72%	13%	10%	5%

This table indicates the distribution of travel by mode in Canadian cities.

That 10% of commute trips are made by transit does not mean only 10% of commuters ride transit. Many commuters use a combination of modes. For example, many commuters ride transit one or two days a week and drive other days.

According to estimates by the Canadian Urban Transit Association, more than 50% of the Canadian population lives in urban areas with high quality public transit service.[26] In addition, many people who live outside city limits can use park-and-ride or vanpool services to reach urban jobs. The majority of Canadians, therefore, have the potential of using transit benefits at some time during their working life.

[25] *Urban Transportation Indicators*, Transportation Association of Canada (Ottawa), 1996; Various municipal transport surveys.

[26] *The Taxation of Transit Passes; A Practice Which Should Be Discontinued*, CUTA (Toronto), 1994.

Transportation Demand Management

Transportation demand management (TDM) includes a number of strategies to encourage more efficient travel patterns. It is an increasingly common approach for addressing transportation problems, particularly in urban areas.[27] The Transportation Association of Canada,[28] the Canadian Council of Ministers of Environment, and the American Planning Association[29] emphasize that TDM is essential for addressing future transportation problems. Most Canadian cities are either planning or implemented TDM programs.[30] For example, the Vancouver Regional Transportation Plan has a stated goal of reducing peak period vehicle travel using TDM strategies.[31] Environment Canada states that "*Reducing the need for motorized transportation is an effective way of reducing environmental impact*". The agency emphasizes TDM in general, and shifts from driving to public transit in particular, as critical for environmental protection.[32]

Research indicates that effective TDM programs must integrate both incentives (transit, rideshare, bicycling, walking and telecommuting encouragement) and disincentives (increased automobile user charges, reduced parking supply, and traffic calming measures).[33] Financial incentives are considered the only TDM strategies that consistently reduces drive alone mode share.[34] Although "feel good" TDM programs that appeal to commuters' good intentions to change travel behavior tend to decline in effectiveness over time, financial incentives tend to become more effective over time as users incorporate new prices into long-term decisions.

One of the most common TDM objectives is to encourage commuters to shift from driving to riding transit by making transit relatively attractive. Figure 3 shows responses to a survey which asked downtown Calgary commuter which alternative mode they might use. This and other research indicates that transit is the most popular alternatives to SOV travel. Fiscal incentives are an essential strategy for achieving this objective. A recent survey found that the relative price of driving and transit has a major effect on commute behavior; "*When parking costs exceed transit fares by 20% to 30% or more, commuters tend to take transit the majority of the time as opposed to driving to work.*[35]

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[27] Morgan MacRae, *Transportation Demand Management - A Policy Challenge*, Canadian Energy Research Institute (Calgary), August 1994.

[28] *A New Vision of Urban Transportation*, Transportation Association of Canada (Ottawa), March 1993.

[29] *APA Policy on Transportation Planning*, American Planning Association (Chicago), October 1990.

[30] Transport Concepts, *State of Transportation Demand Management Plans in Canadian Urban Areas*, Environment Canada (Ottawa), March 1995.

[31] Transportation Finance Authority, *Going Places*, Province of British Columbia (Victoria), 1995.

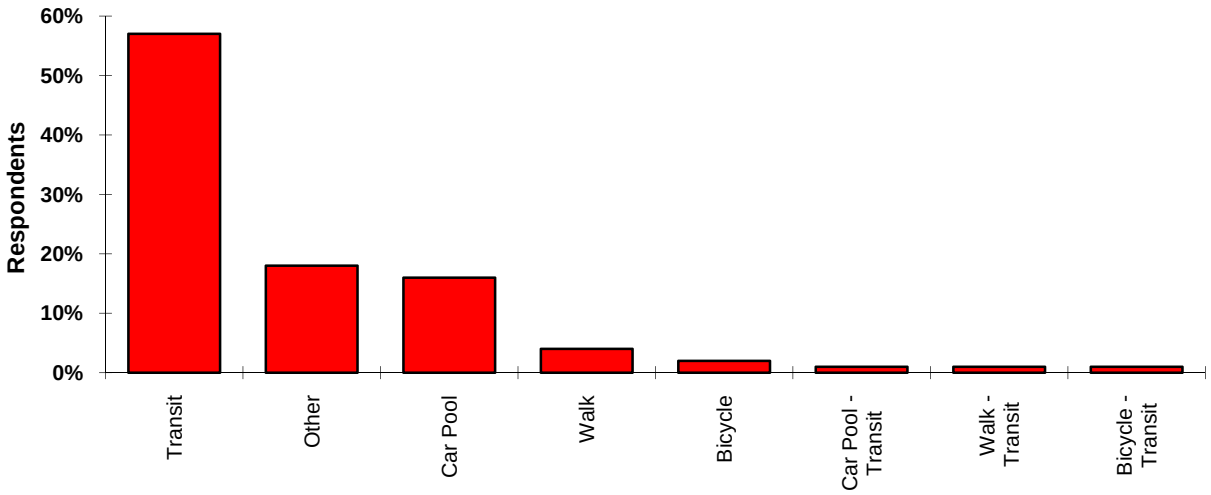
[32] *Canadian Passenger Transportation*, State of the Environment Reporting Program, Bulletin No. 95-3, Environment Canada, Environmental Conservation Services (Ottawa), Spring 1995.

[33] Philip Winters, *Commute Alternatives Educational Outreach*, Centre for Urban Transportation Research (Tampa), January 1995; *Implementing Effective Travel Demand Management Measures*, FHWA (Washington DC), 1993.

[34] Cambridge Systematics, *Effects of Land Use and Travel Demand Management Strategies on Commuting Behavior*, USDOT (Washington DC), DOT-T-95-06, November 1994, chapter 4.

[35] *1995 Citywide Travel Behavior Survey*, San Francisco County Transportation Authority (Oakland), 1995.

Figure 3 "What Alternative Mode Would You Use?"[36]

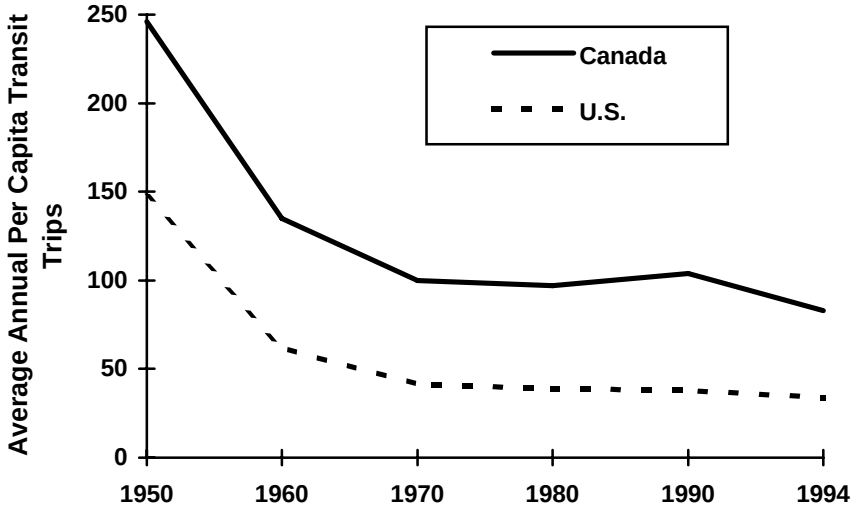


Transit is the most popular alternative for downtown Calgary automobile commuters.

Transit Use Trends

Canadian cities have higher rates of transit use than U.S. cities, but this difference has declined in recent years, as indicated in Figures 4 and 5.

Figure 4 **Public Transit Ridership Trends**[37]



Canadians ride transit more than U.S. residents, but this difference has declined since 1990. Perl and Pucher argue that this results from increased transit fares relative to automobile costs.

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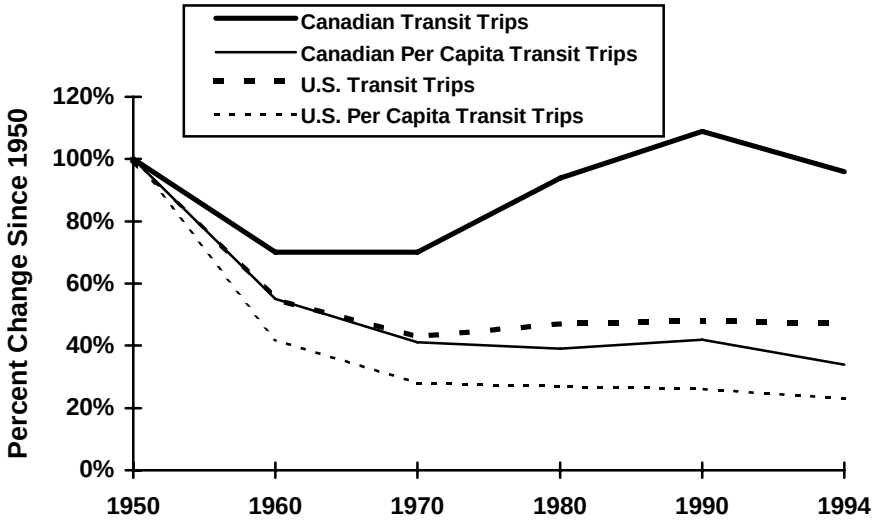
[36] Morgan MacRae, *Transportation Demand Management - A Policy Challenge*, CERI (Calgary), 1994.

[37] Anthony Perl and John Pucher, "Transit In Trouble?," *Canadian Public Policy*, Vol. 21, No. 3, 1995, Table 1.

A number of factors contribute to this shift, including increases in income, automobile ownership, women's employment, and automobile oriented land use patterns.[38] Another factor identified by Perl and Pucher is that transit fares have increased about 25% over the last decade in real terms, while the price of operating an automobile (variable costs) has declined.[39] These authors emphasize the need to make transit use financially attractive to commuters who are automobile owners, and therefore have the option of driving, in order to achieve efficient transit service and reduce the external costs of automobile use.

Figure 5 **Public Transit Ridership Trends**[40]



Per capita transit use declined in the U.S. more than in Canada, but this difference has gotten smaller since 1990.

This reduction in transit use imposes a number of costs on society, including traffic congestion, pollution, roadway facility costs, parking demand, and urban sprawl. These costs are particularly high in urban areas. For this reason, the Transportation Association of Canada's vision for urban transportation includes increased transit use and reduced automobile use, particularly for commute travel.[41]

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[38] Transplan Associates, *The Implications of Demographic and Socioeconomic Trends for Urban Transit in Canada*, Canadian Urban Transit Association (Toronto), December 1991.

[39] Anthony Perl and John Pucher, "Transit In Trouble?," *Canadian Public Policy*, Vol. 21, No. 3, 1995, Figure 4.

[40] Anthony Perl and John Pucher, "Transit In Trouble?," *Canadian Public Policy*, Vol. 21, No. 3, 1995, Table 1.

[41] *A New Vision of Urban Transportation*, Transportation Association of Canada (Ottawa), March 1993.

VI. Comparing Users' Perceived Costs of Driving and Transit

Price Impacts on Travel Behavior

For any type of trip, some travelers will normally drive and others will normally ride transit, but some people will choose between these modes depending on conditions. Over the last decades, and continuing for the foreseeable future, the portion of the population that is transit dependent (people who would always ride transit) is declining.[42] An increasing portion of transit riders have a choice, and are therefore sensitive to the relative costs of transit and driving.[43]

Comparing Driving and Transit Prices

Although owning an automobile is expensive, averaging several thousand dollars annually per vehicle, most of these costs are perceived as fixed. Automobile owners seldom say, "*I'll ride the bus today to save on depreciation and insurance.*" Individual trip decisions are most affected by variable costs: the prices of fuel, parking and tolls. Fuel costs per unit of travel have declined significantly over the last two decades due to declining real fuel prices (adjusted for inflation), and increased average vehicle efficiency. Tolls are nearly non-existent in Canada, and user paid parking is uncommon. As a result, driving appears cheaper to an automobile owner than using transit for most trips.

Table 4 **Transit Pass Prices in Canadian Cities**[44]

City	Adult Fare	Adult Monthly Pass
Calgary	$1.50	$48
Edmonton	$1.60	$46
Hamilton	$1.70	$56
London	$1.40	$54
Montreal	$1.75	$43
Mississauga	$2.00	$64
Ottawa	$1.60	$57
Quebec City	$1.80	$43
Toronto	$2.00	$76
Vancouver	$1.50	$54
Victoria	$1.35	$62
Winnipeg	$1.35	$52
Average/Total	*$1.35*	*$47*

This table summarizes transit fares for selected Canadian cities.

[42] Transplan Associates, *The Implications of Demographic and Socioeconomic Trends for Urban Transit in Canada*, Canadian Urban Transit Association (Toronto), December 1991.

[43] This paper focuses on financial costs, although it is important to acknowledge that travel time is also a major factor in mode choice. Transit trips often take longer than automobile trips, but not when separated right-of-way or HOV priority facilities provide time savings to transit vehicles. Also, riders tend to treat time spent on a comfortable transit vehicle as having less cost than the same time spent driving in congestion, because being a passenger is less stressful, and passengers can rest or read. If transit conditions are uncomfortable, time spent riding transit has a higher cost than driving.

[44] *Canadian Transit Fact Book*, Canadian Urban Transit Association (Ottawa), 1995. See Appendix for a more complete table.

Canadian urban transit fares average $1.35 per trip, and monthly transit passes average $47 per month, as indicated in Table 4. At this price, a transit pass costs about the same as out-of-pocket vehicle expenses for an average automobile commute trip. In other words, an average automobile owner perceives no financial incentive to commute by transit rather than drive.[45] This price structure helps explain why most commuters choose to drive even if high quality transit service is available. The practice of providing subsidized parking to automobile commuters, but offering no comparable subsidy to non-drivers, makes driving significantly more attractive than if commute benefits were unbiased. On average, free parking provided by employers is found to increase urban solo automobile commuting by 25% over what occurs if employees pay for their own parking, all else being equal.[46]

A typical urban parking space is estimated to cost $1,200 per year, plus GST.[47] Assuming a 38% marginal tax rate, exempting employee parking from income tax represents a benefit to drivers of $488 annually. The total value of free, untaxed parking represents a $1,772 annual benefit to automobile commuters. This is the additional wages employees would need to earn to purchase the parking themselves. Transit riders, on the other hand, do not receive such favorable treatment. Virtually no Canadian employers provide employee transit benefits, and if they do such benefits would be taxed. These financial incentives are compared in Table 5.

Automobile users are unlikely to perceive parking benefits as unfair because they typically pay more in total transportation costs than transit users, due to their thousands of dollars in annual vehicle ownership expenses. They might also protest that they pay taxes on vehicles and fuel, and registration fees. However, such expenditures and taxes represent costs. Automobile use is expensive in terms of resources consumed. Special automobile taxes are user fees that represent the costs of providing roadway facilities and services, and therefore should not be considered to substitute for income taxes which support general public services. Automobile users underpay the full roadway costs they impose, particularly in terms of local road facilities and services that are financed by local taxes, not vehicle user charges.[48]

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[45] Of course, some employees perceive savings because they have longer than average commutes, high vehicle operating costs, or who pay for their own parking.

[46] Donald Shoup, "Cashing Out Employer Paid Parking; A Precedence for Congestion Pricing?" in *Curbing Gridlock*, National Academy Press (Washington DC), 1994, pp. 152-199, Table, 2.

[47] This represents the full cost of providing additional urban parking capacity at employment sites, representing a typical mix of surface and structured facilities. This value is higher than many people realize because most parking is subsidized and underpriced for reasons described earlier, so they seldom confront full costs, as discussed in the section on parking costs in this report.

[48] Todd Litman, *Whose Roads?*, Victoria Transport Policy Institute (Victoria), 1996.

Table 5 **Automobile and Transit Incentives Compared**[49]

Policies	Automobile Benefits	Transit Benefits	Net Financial Incentive
Actual Current Policy (Free, tax exempt parking, no transit benefit)	Parking benefit $1,200 GST avoided 84 Tax exemption 488 Total benefit $1,772	Transit benefit $0 GST exemption 46 Tax exemption 0 Total benefit $ 46	Auto benefit $1,772 Transit benefit - 46 Auto advantage $1,726
Official Policy (Free, taxed parking, no transit benefit)	Parking Benefit $1,200 GST avoided 84 Tax exemption 0 Total benefit $1,284	Transit benefit $0 GST exemption 46 Tax exemption 0 Total benefit $ 46	Auto benefit $1,284 Transit benefit - 46 Auto advantage $1,238
Transit Benefit Proposal (Free, tax exempt parking and transit benefits)	Parking benefit $1,200 GST avoided 84 Tax exemption 488 Total benefit $1,772	Transit benefit[50] $480 GST exemption 46 Tax exemption 182 Total benefit $ 708	Auto benefit $1,772 Transit benefit - 708 Auto advantage $1,064

Free, untaxed parking benefits but no transit benefits result in a $1,726 annual financial incentive to automobile over transit commuting.

VII. Commuter Travel Impacts

Travel impacts of this proposal can be estimated using the following model:

Automobile Travel Reduction = Coverage x Recipients x Mode Shift

where:

Coverage = Percentage of employees offered transit benefits.

Recipients = Portion of employees offered transit benefits who accept them.

Mode Shift = Shift from auto to transit trips among recipients.

These factors are discussed below:

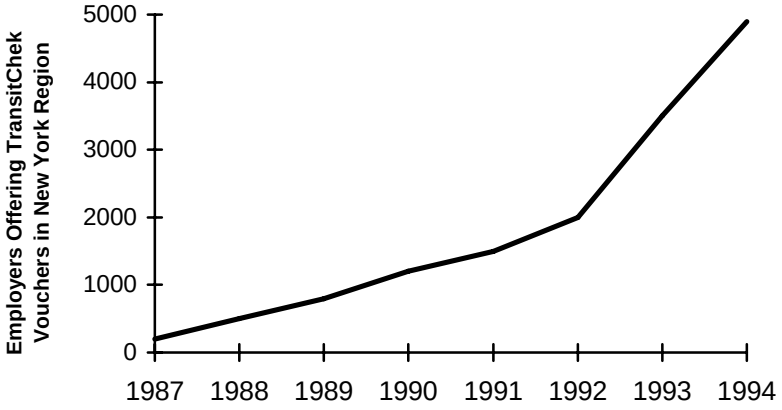
1. Percentage of employees offered transit benefits ("Coverage").
Program coverage is a function of the number of employers offering transit benefits and their size. Making transit benefits tax exempt gives employers an incentive to provide such subsidies. Experience in the U.S. indicates that it is possible to achieve a 5% coverage rate after 5 to 10 years of program development, with a 10 to 25% annual growth rate. Figure 6 illustrates employer participation in the New York City area.[51]

[49] Assumes $100 monthly parking cost, $55 monthly transit pass, 7% GST, and 38% marginal tax rate.

[50] Assumes $40 per month employee transit benefit.

[51] Judith Schwenk, *TransitChek in the New York City and Philadelphia Areas*, Volpe Transportation Systems Centre, USDOT (Washington DC), October 1995; Oram Associates, *Impact of the Bay Area Commuter Check Program: Results of 1994 Employee Survey*, Metropolitan Transportation Commission (Oakland), 1995.

Figure 6 **Growth in Employers Offering Transit Vouchers in New York Region**[52]



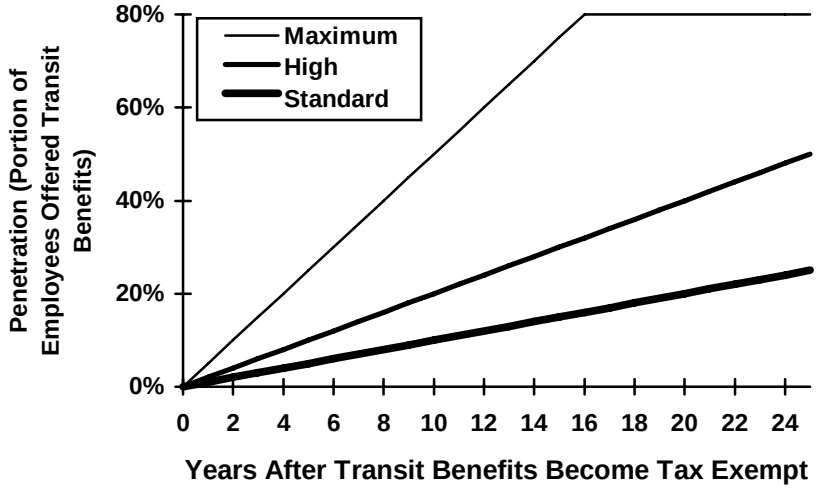
The number of employers offering transit vouchers is increasing steadily in the U.S. where such programs are offered. Coverage is particularly high in the New York City region, as indicated in this graph. Note the acceleration in growth after the maximum allowable tax exempt subsidy was increased from $15 to $60 in 1993.

There is no technical reason that most employers couldn't provide transit benefits, given appropriate incentives. Critics might argue that strong incentives involving subsidies or mandates are unpopular, but that is not entirely true. Subsidies in the form of free or underpriced municipally supplied parking, and mandates in the form of parking requirements, are nearly universal in North American cities. There may be opposition to *new* mandates and subsidies. However, when offered as a tradeoff against existing parking mandates, as part of comprehensive TDM programs, or as an alternative to unpopular strategies such as road pricing, strong incentives for transit benefits may be acceptable.

A reasonable estimate is that transit benefit program coverage would grow at one percentage point of employment annually under "Standard" conditions, and about twice that, considered a "High" growth rate, if aggressively promoted as part of regional TDM efforts. A "Maximum" growth rate indicates what might happen if employers were required to provide transit benefits, as zoning codes require parking facilities. This growth level is unlikely to occur, but is included in this analysis to indicate an upper bound of possible impacts. Figure 7 illustrates these growth rates.

[52] Judith Schwenk, October 1995, Figure 2.5.

Figure 7 **Estimated Transit Benefit Program Coverage Growth**



Experience indicates that coverage can grow at 1-2 percentage points of total employment annually, if marketed aggressively. A "maximum" option comparable to parking standards is illustrated to indicate maximum coverage.

The following factors are likely to affect the growth rate of transit benefit coverage:[53]

- *Regional marketing efforts and support.* Transit agency promotion, voucher programs such as Commuter Check (particularly in communities with more than one transit agency), and Transportation Demand Management programs can facilitate transit benefit coverage.
- *Parking problems and savings.* Employers can use transit benefits to reduce parking costs and problems, providing an incentive for employers to offer such benefits.
- *Employee value and support.* The value that employees place on transit benefits. This depends on the quality of transit service, geographic factors, and employee income.

2. Portion of employees offered transit benefits who accept them ("Recipients"). Current transit use at an employment location can be considered a predictor of recipients. Both full- and part-time transit users can be expected to accept transit benefits, plus a small portion of employees who do not currently ride transit at all but will in response to transit benefits. An estimated 50% of transit commuters ride transit full-time, while the other 50% ride transit part-time.[54] Recipients are therefore estimated here to average 1.5 times current transit commute rates.

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[53] Comments by Richard Oram, Oram Associates, New York, 1996.

[54] Little published data on the distribution of transit use frequency by transit commuters is available. User surveys in Victoria, BC show that about half of peak period adult transit riders use cash or tickets, indicating they are infrequent riders. An even greater portion of occasional transit users were reported by Richard Oram and Stephen Stark in "Infrequent Riders: One Key to New Transit Ridership and Revenue," *Transportation Research Record*, #1521, 1996, pp. 37-41.

For example, if 16% of current commute trips are by transit in a region, this indicates that 24% of employees offered transit benefits will accept them. This assumes that about 8% commute by transit full-time, 14-15% commute by transit part-time, and 1-2% do not currently use transit but would start (at least part-time) if offered transit benefits. Acceptance can be expected to increase further if transit service is improved or other TDM measures are implemented to encourage transit use, such park-and-ride facilities, HOV facilities, or guaranteed ride home programs.

3. Shift from auto to transit trips among recipients. ("Mode Shift").
Experience with transit voucher programs in the U.S. indicate that these programs typically shift 20-percentage points of recipients' commute travel from auto to transit. This is indicated in Table 6, which shows a 19.9% reduction in automobile commute travel resulting from transit vouchers in the Philadelphia region. Similarly, voucher programs in the San Francisco region increased transit commutes an average of 2.05 per week among recipients, or a 20.5-point mode shift assuming 10 average weekly commute trips.[55]

Table 6 **Primary Commute Mode Among Philadelphia TransitChek Recipients**[56]

Mode	Before TransitChek	After TransitCheck	Mode Shift (Percent Total Commutes)
Public Transit	73.7%	98.7%	+25.0%
Drive Alone	20.3%	0.4%	-19.9%
Auto Passenger	3.9%	0.6%	-3.3%
Bicycle	0.1%	0.0%	-0.1%
Walk	2.0%	0.3%	-1.7%

This transit voucher program caused a 25-point mode shift to transit, resulting in a 20-point reduction in automobile use.

Mode shifts tend to be greatest if current transit use is low. In New York City, where transit commute rates are already high, transit benefits only increased transit use by 16% to 23%, while in Philadelphia, transit commuting increased 32% among recipients.[57] Similarly, only 30% of employees who received transit benefits who work in San Francisco increased their transit use, while 44% of those in other parts of the region commuted by transit more.[58]

One transit agency that has considerable experience with such programs estimates that transit ridership increases at least 25% when employers subsidize transit fares.[59] The Toronto Transit Commission estimates that the availability of subsidized transit passes

[55] Oram Associates, 1995.
[56] Judith Schwenk, October 1995, Table 3-6.
[57] Judith Schwenk, October 1995.
[58] Oram Associates, *Impact of the Bay Area Commuter Check Program: Results of 1994 Employee Survey*, Metropolitan Transportation Commission (Oakland), 1995.
[59] Richard Oram, Oram Associates (New York), written comments, 3 April 1995.

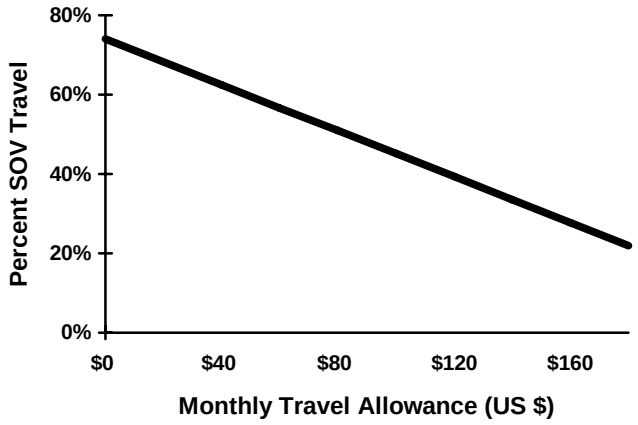
would increase the sale of monthly passes by 20% in the short run, yielding an additional 2.5 million transit trips per year.[60] BC Transit estimates that a tax exemption would increase transit pass sales by 10%, providing a 2% to 3% increase in total ridership. The price elasticity of peak period transit travel in North American cities is estimated to average -0.23.[61] Thus, employees who receive a free transit pass could be expected to increase transit use by 23%.

U.S. Voucher Programs

The New York City region's TransitChek program (the oldest) sells vouchers to 6,000 employers, provides more than $25 million worth of transit benefits to 79,315 employees, representing approximately 2% of total rush hour trips, resulting in 1.7 million *new* transit boardings.[62] The Commuter Check program in the San Francisco Bay area sells $6 million worth of vouchers to about 700 employers.[63] This has increased transit use an average of 31% among those who receive vouchers, resulting in an estimated 17 million miles of reduced automobile travel, and $1.6 million in increased transit revenue in 1994.

An increase in transit commute travel does not translate into an equal reduction in automobile travel, since some trips shift to transit from other non-automotive modes. As indicated in Table 3, 10-20% of urban peak trips are currently made as an automobile passenger, bicyclist or pedestrian. Thus, 80-90% of new transit commute trips result in a reduction in automobile trips.

Figure 8 **Effect of Economic Incentives on SOV Rates**[64]



SOV travel declines as economic incentives for other modes increase.

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[60] *Taxation of Transit Passes*, Canadian Urban Transit Association and the Federation of Canadian Municipalities, 1993

[61] Larry Pham and Jim Linsalata, *Effects of Fare Changes on Bus Ridership*, American Public Transit Association (Washington DC), May 1991.

[62] Oram Associates, 1995; Judith Schwenk, October 1995.

[63] Oram Associates, 1995.

[64] Rutherford, et al., "Transportation Demand Management: Case Studies of Medium-Size Employers," *Transportation Research Record, #1459*, 1995, p.15.

Figure 8 illustrates the effect of economic incentives on SOV travel according to empirical evidence from one recent study. This indicates that a $40 U.S. monthly travel allowance (approximately equal to a $55 Canadian monthly transit pass) could reduce automobile mode split from about 74% to 62%, or a 16% reduction in driving in urban areas with good transit service. Australian research indicates that the elasticity of mode shift from car to rail transit with respect to transit fare is -0.09, indicating that a 100% reduction in transit fares should reduce automobile use by 9%.[65]

Current U.S. voucher programs probably represent the lower range of mode shifts since they are marketed primarily as an employee benefit and are therefore most attractive to firms with high current levels of transit commuting. Greater mode shifts are likely if employers are allowed to trade off parking requirements in exchange for transit benefits, or by mandating transit benefits as parking facilities are now mandated.

Larger mode shifts could be expected if transit voucher programs are implemented with other pro-transit measures. Experience indicates that the most effective TDM programs include both disincentives to drive and incentives to use alternative travel modes.[66] A major U.S. study found that, "*Based on over 20 employer-based TDM programs, evidence suggests that financial incentives for the use of commute alternatives are effective in reducing trips by 8-18 percent...When financial incentives are combined with disincentives to driving alone (parking charges) the reductions can approach 50 percent.*"[67] The following factors can be expected to affect mode shift:

- *Transit service quality and popularity.* The quality of transit service affects commuters' willingness to choose transit commuting.
- *Employee parking costs.* When employees must pay for parking they are more likely to choose transit for commuting.
- *Geographic conditions.* Employees are more likely to use travel alternatives if their work and residential locations are transit oriented.[68]
- *Convenience and support services (such as "guaranteed ride home").* If transit use is convenient and trouble free, employees are more likely to participate. Guaranteed ride home programs have been found to increase participation.[69]
- *Time scale.* All else being equal, transit use should increase over time as the availability of transit benefits affect long term decisions.

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[65] James Luk and Stephen Hepburn, *New Review of Australian Travel Demand Elasticities*, Australian Road Research Board (Victoria), December 1993.

[66] Philip Winters, *Commute Alternatives Educational Outreach*, Centre for Urban Transportation Research (Tampa), January 1995, p. 4-37.

[67] Comsis Corporation, *Implementing Effective Travel Demand Management Measures*, FHWA (Washington DC), Sept. 1993, p. 3-21.

[68] Lawrence Frank and Gary Pivo, "Impacts of Mixed Use and Density on Utilization of Three Modes of Travel: SOV, Transit and Walking," Transportation Research Record, #1466, 1995, pp. 44-55.

[69] Cambridge Systematics, *Effects of Land Use and Travel Demand Management Strategies on Commuting Behavior*, USDOT (Washington DC), DOT-T-95-06, November 1994.

Summary of Estimated Travel Impacts

Table 7 summarizes some of the assumptions used in an analysis model to estimate travel reduction impacts of tax exempt employee transit benefits. We believe that these assumptions are realistic, based on the best available information. For additional assumptions and more information on data sources, see Appendix 1.

Table 7 **Summary of Assumptions Used in Analysis Model**

Definition	CBD	Outside CBD	Total Urban Area
Portion of total urban employment.	20%	80%	100%
Current automobile mode split	40%	80%	72%
Current transit mode split	40%	10%	16%
Rideshare, bicycle and walk mode split	20%	10%	12%
Peak period travel as portion of total travel.	35%	35%	35%
Commuting as portion of peak period travel.	90%	70%	74%
Average auto/transit commute distance (km).	12	12	12
Annual growth in urban-peak vehicle travel.	1.0%	1.5%	1.4%
Annual growth in program Coverage (portion of employees offered transit benefits), *Standard*.	1.0%	1.0%	1.0%
Annual growth in program Coverage (portion of employees offered transit benefits), *High*.	2.0%	2.0%	2.0%
Recipients (portion of employees offered transit benefits who accept them).	60%	15%	24%
Mode shift (auto travel reduction among recipients as a portion of total commute trips).	14%	21%	19.7%

This table summarizes the assumptions used to estimate automobile travel reductions.

Unrealistically low "Lower Bound" estimates are used for sensitivity analysis incorporating the following values:

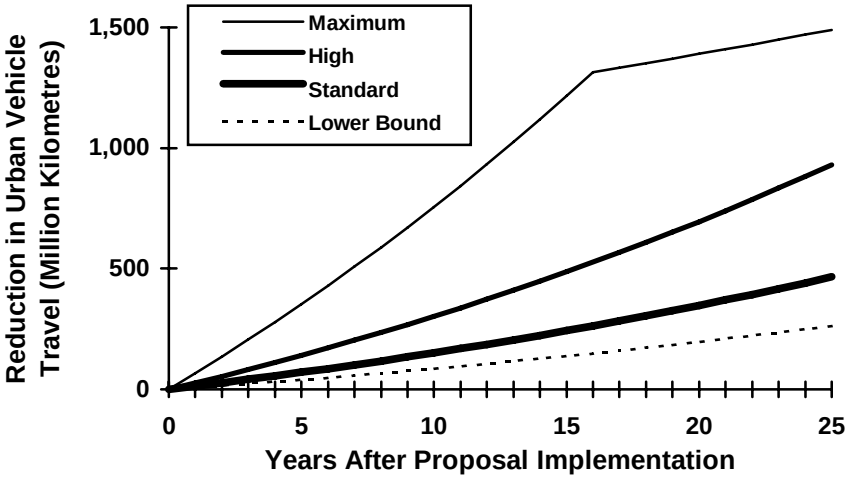
Table 8 **"Lower Bound" Estimate Values**

Definition	CBD	Outside CBD	Total Urban Area
Portion of automobile commuters who receive free or significantly subsidized parking at work.	30%	70%	62%
Transit commute increase among recipients (portion of total commutes).	5%	15%	13%
Net economic benefit from auto to transit mode shift.	$0.15	$0.10	$0.11
Average cost per parking space	$100	$50	$60

This table shows alternative lower bound values used for sensitivity analysis.

Figure 9 illustrates the total reduction in urban vehicle travel estimated to result from this proposal. Majority impacts don't occur for many years, due to the slow expected program growth. The "Lower Bound" estimate represents *Standard* program growth matched with the values from Table 8. These lower bound assumptions reduce estimated travel reduction impacts by approximately 44% for a given level of program coverage.

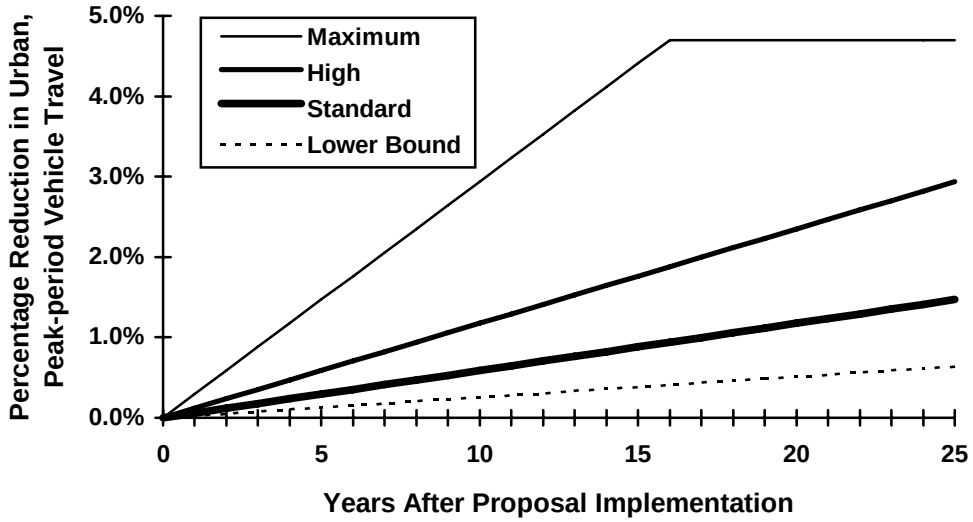
Figure 9 **Vehicle Travel Reduction in Cities With More Than 100,000 Pop.**



This figure illustrates the proposal's total travel impacts in Canadian cities with populations greater than 100,000, based on assumptions described above.

Figure 10 illustrates the estimated travel reduction as a portion of total urban peak travel.

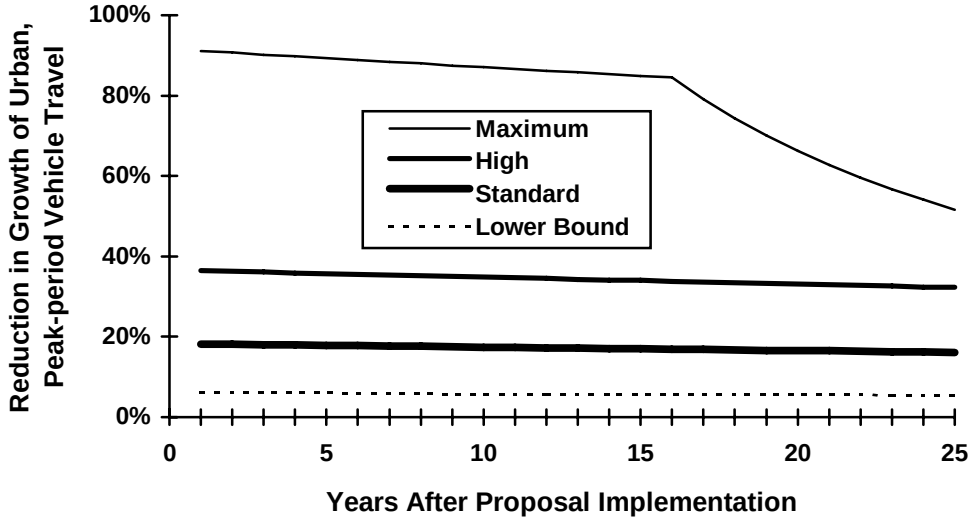
Figure 10 **Estimated Urban Peak Travel Impacts**



This figure illustrates travel impacts as a portion of total peak period vehicle traffic.

These reductions in peak period vehicle travel will not be visible in most urban areas because traffic volumes are growing, and due to latent demand which tends to fill available road capacity. Rather, it would reduce the growth in vehicle traffic and traffic congestion, allowing capacity expansion projects to be deferred or avoided. Figure 11 illustrates automobile travel reductions as a percentage of anticipated urban traffic growth.

Figure 11 **Percentage of CBD Traffic Growth Avoided**



This figure illustrates travel impacts as a portion of CBD peak period traffic growth.

Example

Based on the estimates described above, for each 100 urban employees offered transit benefits, 24 would accept them (60% in the CBD and 15% outside of the CBD). These recipients would increase their transit use by an average of 23% of commute trips, or 110 commute trips each per year (out of 480 total commute trips), representing 95 fewer automobile commute trips (480 x 23% x 86%), taking into account that only 86% of existing non-transit trips are made by automobile. This total reduction of 2,280 automobile trips (95 annual automobile trips reduced x 24 employees) represents 4.75 full-time commute equivalents, or a 6% reduction out of 37,400 current total auto commute trips (100 employees x 480 annual trips x 78% automobile mode split).

Assuming that transit benefits average $40 per month, this represents a "cost" of $960 per month (24 recipients x $40 per month), plus $365 in reduced income tax revenue.[70] (These are not true resource costs, but rather economic transfers from employers and government to transit commuters.) This is offset by a 20% (23% x 86%) average reduction in parking costs among recipients (these *are* true cost savings because they represent reduced parking resources consumed), providing $480 in monthly savings to employers (24 recipients x 20% x $100 per month average parking costs), plus $182 in additional tax revenue.[71] Net monthly program "costs" are therefore $480 for employers and $183 in reduced tax revenue, or $101 and $39 respectively per month for each full-time equivalent automobile commuter shifted to transit ($480 or $183 x 24 recipients x 20% mode shift).

[70] Assuming transit benefits represent a dollar-for-dollar reduction in wages at a 38% marginal tax rate. Actual tax revenue losses are smaller since 5-10% of this transfer is likely to be spent on GST and PST.

[71] Assuming savings provide wages or profits with a 38% marginal tax rate.

If Lower Bound values are assumed, recipients would increase transit use by 13% of commute trips, or 62 commute trips each per year (out of 480 total commute trips), representing 54 fewer automobile commute trips (480 x 13% x 86%). This total reduction of 1,296 automobile trips (54 annual automobile trips reduced x 24 employees) represents 2.7 full-time commute equivalents, or a 3.4% reduction out of 37,400 current total auto commute trips (100 employees x 480 annual trips x 78% automobile mode split).

The $960 per month average transit benefit program expenditure and $365 income tax revenue reduction and per 100 employees is offset by an 11% (13% x 86%) average reduction in parking costs among recipients, providing $158 in monthly savings to employers (24 recipients x 11% x $60 per month average parking costs), plus $60 in additional tax revenue.[72] Net monthly program "costs" are therefore $802 for employers and $305 in reduced tax revenue, or $303 and $116 respectively per month for each full-time equivalent automobile commuter shifted to transit.

Non-Commute and Secondary Impacts

Transit benefit programs also increase non-commute transit travel. In the San Francisco region, transit voucher recipients took 1.19 additional non-commute transit trips per week in addition to the 2.05 additional weekly transit commute trips. In the New York region, 22.8% of employees increased their commute transit use, while 16.0% increased their non-commute transit use. It is uncertain how many of these non-commute transit trips replaced an automobile trip, so they are not included in travel impact analysis in this report. As a result, total vehicle travel reductions may be as much as 50% greater than estimated.

There are several possible secondary travel impacts from transit benefits. For example, commuters who commute by transit do not make automobile trips during lunch breaks, and if transit commuting allows a household to reduces its vehicle ownership, total automobile use will probably decrease. On the other hand, transit commuters may make additional vehicle trips to perform personal errands that would have been made as part of an automobile commute. If transit commuting reduces traffic congestion it can create generated traffic. Increased demand for transit commuting may lead to an increase in demand for residences in transit oriented communities, which can reduce total household automobile use. These secondary impacts are difficult to predict, and may tend to offset each other overall.

[72] Assuming savings provide wages or profits with a 38% marginal tax rate.

VII. Environmental, Safety and Economic Impacts

1. Overall Economic Benefits.
A shift from automobile to transit reduces a number of costs, as summarized in Table 9.

Table 9 **Costs Typically Reduced by Shift From Auto to Transit**[73]

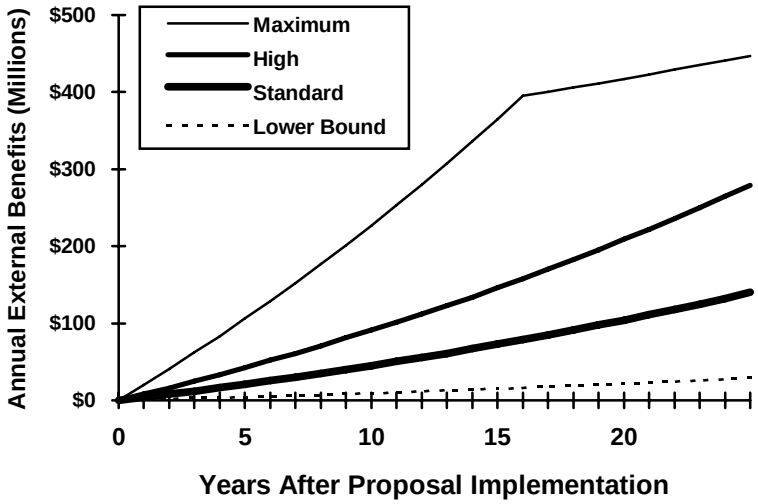
	Description	Magnitude	Distribution
1. Congestion Reduction.	Reduced traffic congestion resulting from reduced vehicle traffic. Avoided expenditures to increase roadway capacity.	Estimated to average 10-30¢ per kilometre of driving reduced on congested urban roads. Greatest on CBD surface streets.	All road users, road agencies, tax payers.
2. Parking Cost Savings.	Reduced parking problems and parking facility cost savings from reduced automobile use.	Estimated to save $5-10 per commute trip shifted from driving to transit.	Auto users, businesses, and government.
3. Safety Benefits.	Relative safety of bus compared with automobile travel.	Save estimated at 3-8¢ per kilometre shifted from driving to transit.	Bus riders, all road users, and society.
4. Road Facility and Service Cost Savings.	Reduced costs for roadway construction, maintenance, traffic police, and related services.	Estimated to save about 5¢ per kilometre shifted from urban driving to transit.	Gov. agency budgets, society.
5. Reduced Roadway Land Requirements.	Reduced need to use land for roads. Increased tax revenue.	Estimated to save about 4¢ per kilometre, but savings are long term and indirect.	Government agencies, the environment, society.
6. Land Use Impacts.	Reduced urban sprawl, loss of greenspace and negative aesthetic impacts of roads.	Probably moderate to large. Includes many different costs. Difficult to measure.	Government agencies, the environment, society.
7. Air Pollution Reductions.	Reduced vehicle air pollution.	Small to large local benefits depending on conditions and impacts.	Society.
8. Water Pollution.	Reduced vehicle water pollution due to reduced automobile use.	Estimated at about 1¢ or less per mile shifted.	Society.
9. Resource Conservation.	Reduced use of energy and other natural resources.	Small. The value of this benefit may increase in the future.	Society.
10. Reduced Barrier Effect.	Improved mobility for pedestrians and bicyclists due to reduced vehicle traffic.	Small to medium. Probably about 1¢ per kilometre overall, and higher in areas with heavy pedestrian traffic	Current and potential pedestrians, cyclists, society.
11. User Cost Savings.	Combined travel time, comfort and financial cost savings.	Small to medium. Users would not choose transit as an alternative to driving if they did not enjoy at least some benefit.	Users.

This table summarizes major categories of benefits that can result from a shift from driving to transit under urban peak travel conditions.

[73] Todd Litman, *Describing and Quantifying Public Transit Benefits*, Victoria Transport Policy Institute (Victoria), 1996.

A number of studies quantify and monetize some of these benefits, as described in Appendix 2. These indicates overall average external cost savings of about 20-40¢ per passenger kilometre for a shift from driving to public transit modes. Benefits are greater for CBD commute trips due to their high congestion, facility and environmental costs. CBD commutes are therefore estimated to impose external costs averaging $0.50 per kilometre, while other urban commute external costs are estimated at $0.25. Figure 12 illustrates the estimated value of these cost reductions.

Figure 12 **Estimated Annual External Benefits**



The external benefits (benefits to other road users and the rest of society) of travel changes resulting from a transit tax exemption are estimated to total millions of dollars annually. These include reduced congestion, parking costs, roadway expense, accidents, and a variety of environmental benefits.

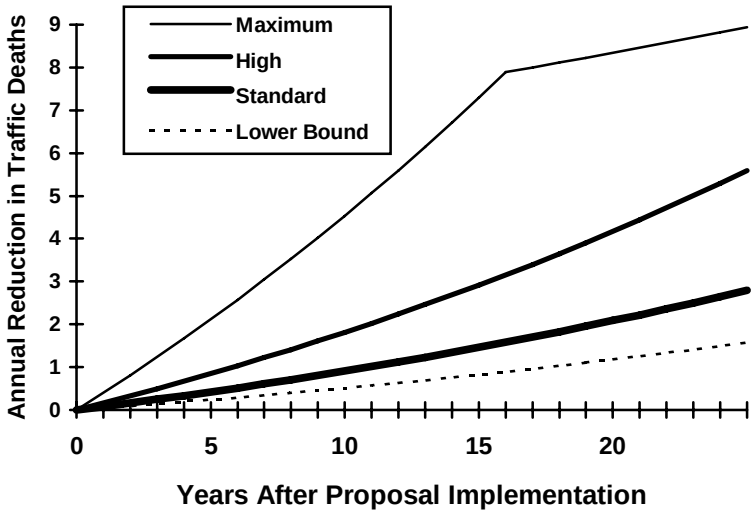
2. Specific Health, Environmental and Social Benefits

Transit travel conserves energy, reduces air emissions, and reduces accidents compared with the same travel by private automobile. Transit travel also tends to increase fitness because it often requires walking or bicycling for access. Many health experts emphasize that a sedentary lifestyle associated with automobile travel is a major medical problem.[74] According to one estimate, a sedentary lifestyle has the cardiovascular health risk equal to smoking 20 cigarettes a day.[75] Although mortality reduction resulting from increased exercise produced by this proposal cannot be quantified, it could be significant.

[74] Physical Activity Task Force, *More People, More Active, More Often*, UK Department of Health (London), 1995.

[75] Ian Roberts, Harry Owen, Peter Lumb, Colin MacDougall, *Pedalling Health—Health Benefits of a Modal Transport Shift*, Bicycle Institute of South Australia, 1996.

Figure 13 **Reduction in Traffic Accident Fatalities**



This figure illustrates the estimated reduction in traffic accident deaths resulting from a shift to transit commuting.

Transit travel has significantly lower accident rates than automobile travel. Estimates summarized in Appendix 2 indicate that automobiles average approximately 6 fatalities per billion miles traveled while transit buses average only 0.01. Figure 13 illustrates the expected reduction in traffic accident fatalities that could be expected from this proposal. Other categories of accidents can be expected to decline comparably.

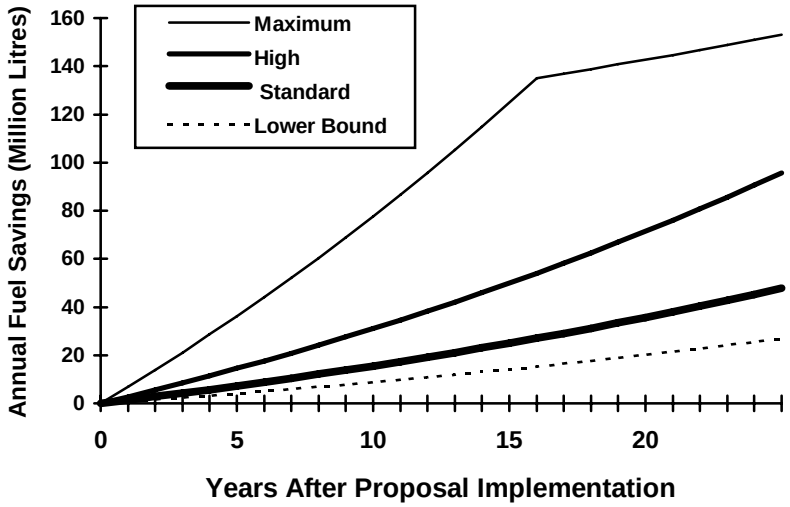
Some potential transit users feel that the risk of walking to and waiting at bus stops offsets the accident safety benefits of transit. Whether such risk is real or only perceived is uncertain, since transit accidents and assaults tend to receive considerable media attention. In one 8 month period, Canada's national newspaper, the *Globe and Mail*, published 40 stories with headlines linking "transit" and "death," but only 14 linking "auto" or "car" with death, despite the much greater number of fatalities associated with automobile accidents.[76] The risk of assault, to the extent that it does exist for transit users, declines as more responsible residents use transit, providing increased security from having more "eyes on the street."[77] Thus, although individuals may feel less safe, the overall impacts of a shift from driving to transit and walking trips is likely to be a net increase in public safety. While transit rider insecurity is an important problem to overcome, there is no reason to consider a shift from driving to transit to be an overall community safety threat.

A typical North American automobile consumes 12 litres of fuel per 100 kilometres. A transit bus consumes about 5 times as much but averages about 40 passengers under

[76] S. McKay and B. Smith Lea, "Media, Death and Transit," *TranspMission*, Summer 1996, pp. 12-13.
[77] Jane Jacobs, *Death and Life of the Great American Cities*, Vintage Books (NY), 1992.

urban peak travel conditions, resulting in energy savings of about 10 litres of fuel per 100 kilometres of mode shift. Figure 14 illustrates estimated fuel savings from this proposal.

Figure 14 **Estimated Fuel Savings**



This figure illustrates estimated fuel savings from this proposal.

Table 10 summarizes emission reductions per passenger kilometre for a shift from driving to transit, based on data in Appendix 2. Figure 15 illustrates CO_2 emission reductions estimated to result from this proposal. Reductions would also occur with other pollutants, reducing air pollution caused human illness and mortality.[78]

Table 10 **Mode Shift Emission Reduction (Grams per Passenger Kilometre)**[79]

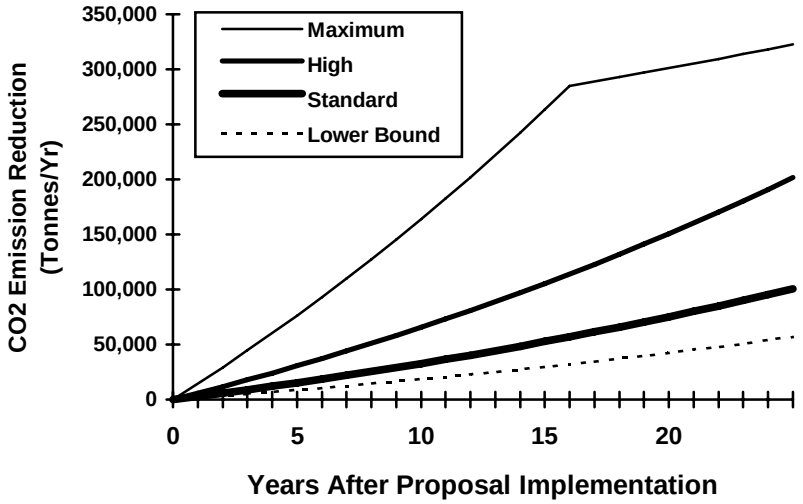
	HC	**CO**	**NOx**	**PM**	**CO_2**
Van Pool	0.5	3.77	0.31	0.02	NA
Diesel Bus	0.06	0.81	0.36	0.09	69
Rail Transit	0	0.001	0.003	0	54
Electric Trolley	0	0.001	0.003	0	NA
Average of transit modes	*0.14*	*1.15*	*0.17*	*0.03*	*62*
Automobile	3.15	23.57	1.91	0.10	278
Average emission reduction from shift to transit	*3.01*	*22.42*	*1.74*	*0.07*	*217*

This table indicates how average emission reductions were calculated for the model.

[78] Estimates of other air emission reductions are included in the spreadsheet model but not provided in this report for brevity. This information is available on request.

[79] *GVRD Air Quality Management Plan: Stage 2 Draft Report: Priority Emission Reduction Measures,* Greater Vancouver Regional District (Vancouver), May 1992; Richard Gilbert (Ottawa) private correspondence, based on Martin and Michaelis' 1992 report to the European Commission.

Figure 15 **CO_2 Emission Reduction**



This figure illustrates the estimated reduction in CO_2.

3. Tax Revenue Impacts

This proposal would exempt a benefit that is currently not provided so there would be no *direct* reduction in income tax revenue. However, it may reduce tax revenue *indirectly* if transit benefits substitute for taxable wages. On the other hand, transit benefits could also substitute for other tax exempt benefits, particularly parking benefits. For example, assuming that transit benefits for *existing* transit trips substitute dollar-for-dollar for wages, transit benefits for *new* transit trips substitute dollar-for-dollar for parking benefits, and a 20% mode shift, annual taxable wages would decline $384 ($480 transit benefit x 80% existing transit trips), while untaxed parking costs would decline $240 ($1,200 parking x 20% new transit trips), resulting in a net income tax revenue reduction of $55 ([$384-$240] x 38%) per recipient, or about $275 per new transit commuter ($55/20%). These impacts are quite sensitive to mode shift, as illustrated in Table 11.

Table 11 **Transit Benefit Impact on Tax Revenue for Various Mode Shifts**

Mode Shift	Average Wage Reduction	Average Parking Cost Reduction	Net Annual Tax Revenue Change
15%	$408	$180	-$87
20%	$384	$240	-$55
25%	$360	$300	-$23
30%	$336	$360	+$9

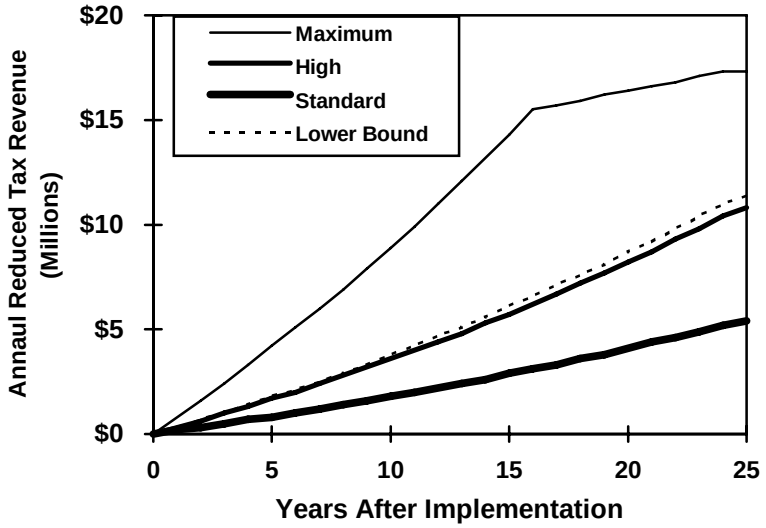
*As mode shifts increase, a greater portion of transit benefits represent parking cost savings rather than reduced wages. Since transit benefits are significantly cheaper than parking benefits, a 30% mode shift leads to a net **increase** in tax revenue.*

Using the "Lower Bound" estimate impact estimates, annual taxable wages would decline $418 ($480 transit benefit x 87% existing transit trips), while untaxed parking costs would decline $79 ($720 parking x 11% automobile trips reduced), resulting in a net income tax revenue reduction of $339 ([$418-$79] x 38%) per recipient, or about $2,607 per new transit commuter ($339/13%). As discussed earlier, the "Lower Bound" values are unrealistically low and so do not reflect true expected impacts.

There are some additional factors that could affect this estimate. First, a portion of the money returned to existing transit riders would be spent on GST and PST. This probably reduces the net reduction in tax revenue by 5-10%. Second, since tax-exempt benefits typically represent 30% or more of total employee compensation packages, it is likely that a significant portion of tax exempt transit benefits would substitute for other tax exempt benefits. These factors overestimate the tax reduction resulting from transit benefits. On the other hand, for many firms there is likely to be a lag time between a reduction in parking demand and actual parking cost savings. In the short term, some firms will capture no savings, particularly those that own rather than lease employee parking, although over the long term nearly any parking facility has value, either to meet growing demand or by converting the land to other uses. Since the first two factors tend to cancel out the third factor it appears reasonable to accept the model as being overall representative, although actual financial impacts are likely to vary between firms and over time.

Figure 16 illustrates total revenue losses that could be expected. The "Lower Bound" estimate is based on *Standard* program growth and an unrealistically low mode shift. Note that these reductions in tax revenue are not costs but economic transfers. They primarily represent new financial savings to current transit commuters, comparable to the savings currently enjoyed by most automobile commuters.

Figure 16 **Estimated Tax Revenue Losses Due to Transit Benefits**

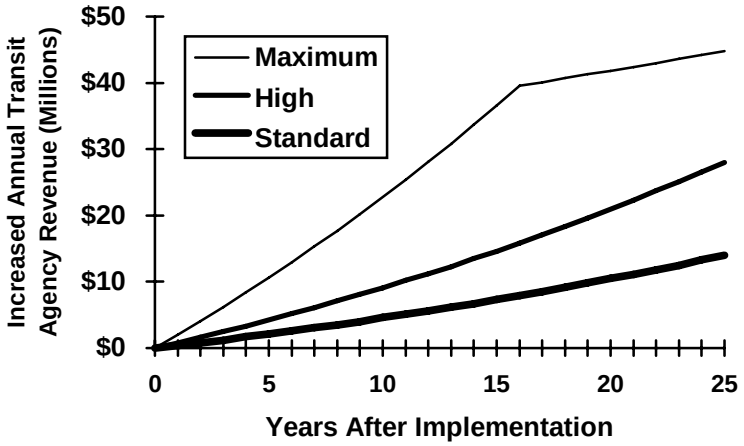


Tax revenue could decline as transit benefits substitute for taxable wages. This is offset to the extent that transit benefits substitute for more expensive untaxed parking costs.

4. Transit Agency Revenue Impacts and Net Employment Growth

This proposal would increase transit agency revenue. Transit voucher recipients increased their transit expenditures an average of $42.62 to $52.44 per month (about $13.75 in current Canadian dollars) in Philadelphia, and a similar amount in the San Francisco Bay area. Figure 17 illustrates the estimated increase in transit agency revenue, assuming that Canadian recipients spend the same amount. This revenue increase is almost three times larger than the estimated reduction in income tax revenue. Increased transit revenue would be offset to some degree by the additional costs of serving more users. However, since transit service experiences economies of scale and many transit services have excess capacity, additional revenue should provide net benefits to transit agencies and society, increasing service qualify or reducing the need for subsidies.

Figure 17 **Estimated Transit Revenue Increase**



This figure illustrates the estimated increase in transit revenue due to the proposed tax exemption, assuming the travel impacts described earlier and an average increased monthly expenditure of $13.75 per transit benefit recipient.

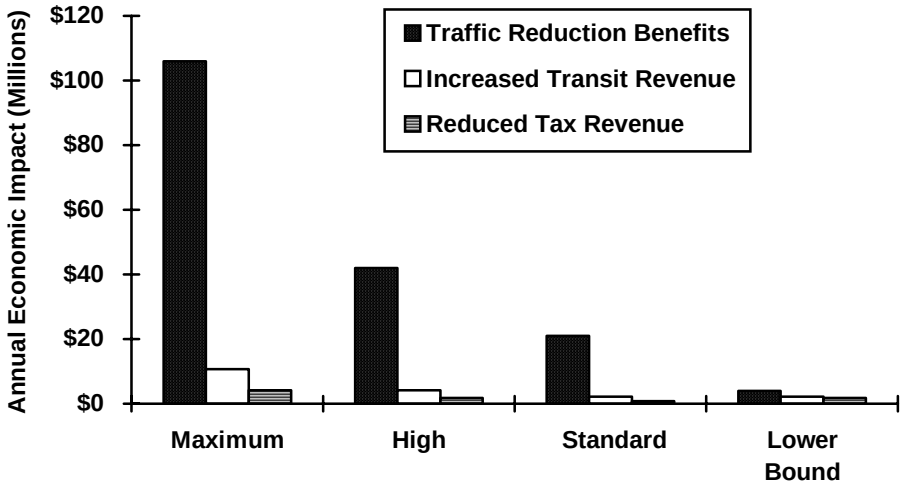
his proposal is likely to increase domestic employment and economic development by encouraging individuals to shift their transportation expenditures from private automobile to public transit. Transit expenditures increase employment and economic development because transit service is relatively labor intensive, while many automobile inputs (including a significant portion of components in domestically assembled vehicles) are imported.[80]

[80] Preliminary findings from the British Columbia Input/Output table indicate that consumer expenditures on transit provide about 3 times the provincial employment as automobile expenditures. Garry Horne, Economic Impacts and Performance, B.C. Treasury Board, 9 April 1996.

Summary of Impacts

Figure 18 compares the estimated impacts of this proposal for a 5% coverage rate (5% of employees are offered transit benefits), which is considered achievable within 5 years of program implementation. This illustrates the large benefits from traffic reduction and increased transit agency revenue compared with reduced tax revenue. The ratios between these impacts should be about the same at any level of program coverage.

Figure 18 **Economic Impacts Compared**



Benefits to society of reduced automobile travel and increased transit agency revenue are many times larger than expected reductions in tax revenue from this proposal.

These results indicate that this analysis is highly robust. Even using an unrealistically low "Lower Bound" estimate of travel impacts and benefits from a reduction period urban driving, net benefits are more than twice the reduced income tax revenue. More likely this analysis *underestimates* full benefits by using low estimates of urban traffic growth, and by not accounting for additional benefits from reductions in non-commute travel.

VIII. Equity Implications

There are two types of equity to consider: *Horizontal equity* refers to the fair treatment of individuals and groups who are considered to be equal in need and ability. It assumes that each individual or group should be treated alike. *Vertical equity* refers to the fair treatment of individuals and groups that are considered unequal in need or ability. It assumes that those who are relatively disadvantaged should be treated more favorably than those who are advantaged. Some equity implications of this proposal are described below.

1. *Horizontal equity between people who can use transit benefits and those who cannot.* Some critics argue that this proposal would be unfair to commuters who are not offered transit benefits or who cannot use transit. This type of inequity applies to nearly all tax policies, since virtually any tax or exemption benefits some individuals more than others. While it is true that not all employees will be offered transit benefits in the near future, coverage should grow. More than 75% of Canadians live in urban areas served by transit, and many commuters living outside of regular transit service area could use employee transit benefits for park-and-ride or van pool services.[81]

2. *Horizontal equity between drivers and transit commuters.* This proposal would eliminate the inequity that exists between automobile and transit benefits. Currently, many of the 910,000 employees who commute by transit receive hundreds of dollars less per year in benefits and tax exemptions than comparable employees who receive subsidized parking. Since employers do not usually discriminate between driving and non-driving employees in wages (by giving non-drivers a higher wage to compensate for the parking benefits they don't use), all employees receive an equal average wage reduction to cover parking costs, causing employees who do not drive to work to subsidize otherwise equal workmates who do.

3. *Vertical equity between drivers and transit commuters.* Employees most likely to use a transit benefit (either as a current or new transit commuter) tend to be economically or physically disadvantaged relative to those who would continue to drive. As a result, this proposal would increase vertical equity. This is supported by empirical evidence from surveys of transit voucher recipients indicate that lower income employees value this benefit most.[82]

It could be argued that this proposal would not increase horizontal equity, since point #1 offsets point #2. However, it would certainly increase vertical equity by providing a benefit that is of greatest importance to lower income and disabled employees. Both theoretical[83] and empirical evidence[84] indicate that most people place more weight on vertical equity than horizontal equity. This proposal would therefore increases equity.

Because parking benefits are worth more on average than would be transit benefits, automobile commuting would *still* represent a greater average tax exemption than transit benefits even if taxes could be collected on most employee parking. To put this another way, parking benefit tax revenue could increase by an order of magnitude and automobile commuters would still receive more tax exemption than transit commuting would receive under this proposal. For this reason, making transit benefits tax exempt is justified even if Revenue Canada significantly increases the collection of taxes on parking benefits.

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[81] Canadian Urban Transit Association estimate.

[82] Oram Associates, 1995.

[83] John Rahls, *A Theory of Justice*, Harvard University Press (Cambridge), 1972.

[84] For example, the use of progressive income taxes rather than a head tax or fixed rate income tax in most developed countries, and special programs and benefits for people who are economically, physically, or socially disadvantaged are horizontally inequitable but vertically equitable. This indicates society's general preference for vertical over horizontal equity

IX. Problems, Objections and Barriers

Possible problems, objections and barriers to this proposal are discussed below.

1. Tax Revenue Impacts

Finance Canada and Revenue Canada have expressed concern that this proposal will reduce tax revenue. They argue that most of the benefits would go to employees who already use transit, rather than new transit riders, resulting in a reduction in tax revenue and little benefit in terms of reduced automobile travel. One estimate concludes that tax revenue would decline $140 million or $2,550 for each new transit user.[85] However, this estimate is based on several unrealistic assumptions all of which skew the results toward overestimating tax revenue reductions. These include:

- *Unreasonably high portion of employees being offered transit benefit.* This analysis assumes that transit benefits would be available to 50% of all employees who currently ride transit, although in the U.S., less than 10% of employers currently offer such subsidies despite the fact that these subsidies have been tax exempt for a decade.
- *Unreasonably low travel impacts of employee transit benefits*. This analysis assumes that offering transit benefits to 50% of urban employees would induce only 54,600 drivers to shift to transit, only about 1.8% of the estimated 3 million automobile commuters offered this benefit. This implies far lower rates of recipients and mode shift than indicated by our research.
- *Assumes no tradeoff between untaxed parking benefits and tax exempt benefits.* This analysis assumes unrealistically that a shift to transit would provide no reduction in parking facility costs or other tax exempt benefits.
- *Overestimates the value of transit benefits.* This analysis assumes that all employers would offer the full average value of a transit pass ($60 per month), when experience in the U.S. indicates that a $40 average monthly subsidy is more realistic. According to one report, among Seattle companies that participate in a transit voucher program, the average subsidy is only a little more than $15 U.S. (about $20 Canadian).[86]

As indicated in Figure 16, annual net reductions in tax revenue are likely to average less than $2 million annually for the first five years after implementation. This short term small reduction in federal revenue may not be harmful. Because of Canada's current economic conditions, many economists are recommending tax reductions to encourage consumer confidence and spending, as described in a 12 October 1996 article in the *Globe and Mail*. Although the 1997-98 federal deficit target is $17 billion, current estimates indicate that it will be far lower. According to Jeffrey Rubin, chief economist at a leading securities firm, "I'd rather have $17 billion and $4 billion in tax cuts than $13 billion." Exempting employee transit benefits should be considered as part of any package to reduce consumer taxes because it would provide multiple economic, social and environmental benefits.

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[85] 16 June 1995 letter from Finance Minister Paul Martin to Al Cormier of CUTA.

[86] Comments by Richard Oram, Oram Associates, New York, 1996.

The revenue currently foregone by exempting automobile parking benefits is many times greater than revenue losses from this proposal. For example, more than 3 million urban commuters are estimated to receive untaxed parking benefits[87] representing $1.4 billion annually in tax revenue foregone, or $660 million using "Lower Bound" values.[88,89]

As discussed in Section IV, Revenue Canada has adjusted taxes to achieve environmental objectives, including tax deductions to mining corporations for provincially mandated reclamation trust funds, favorable tax rates to corporations for alternative energy investments, and increased limits for contributions to environmental charities. However, all tax incentives cited by the federal government benefit corporations or wealthy individuals.[90] This leaves the government vulnerable to the criticism that fails to distribute environmental tax benefits to medium and low income households.

2. Perceived Inequity

Some critics argue that this proposal would be unfair to people who are not offered the benefit or cannot use transit for commuting. This implies horizontal inequity. This concern appears rather arbitrary, since all tax exemptions have, by their nature, different and therefore horizontally inequitable impacts on different tax payers. For example:

- Current employee parking benefit exemptions are only useable by commuters who are offered such benefits and who drive. Many firms located in city centres only provide parking benefits to senior employees. Even if all employees in a firm are offered free parking, those who cannot drive due to poverty or physical disability are excluded. Current parking tax exemptions are therefore unfair.
- Environmental tax exemptions cited by Finance Canada as part of developing a "Sustainable Budget" are only available to large corporations or wealthy individuals.[91]
- The recent reduction in GST on new vehicle purchases is only available to those who purchase new motor vehicles.

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[87] Assuming that of the 10 million employees who commute daily, 60% work in urban areas, 72% drive by automobile, 80% of those receive employee parking benefits that are currently tax exempt, 90% do not require an automobile as part of their work, $100 per month full cost for an average parking space, and a 38% marginal tax rate.

[88] Assuming only 62% of urban employees receive free parking with an average value of $60 per month.

[89] Revenue Canada might have a difficult time collecting the full value of taxes on parking benefits. The Canadian Urban Transit Association calculated that $260 million in revenue foregone based on collecting taxes from a portion of two million commuters use employee subsidized parking, with an annual value of approximately $433 per year per space. The CUTA estimate is probably a more realistic estimate of the amount of revenue that could actually be collected in the medium term. If parking benefits were fully taxed many employees would simply commute by other modes, which is the objective of this proposal.

[90] Similarly, recently modified tax rules exempt a portion of GST on new cars. Since April 1996 the trade in value of a used vehicle is not GST exempt, a tax reduction of greatest benefit to wealthier consumers who regularly purchase new automobiles with high value trade-ins.

[91] *The Federal Government Response to the Eighth Report of the Standing Committee on Environment and Sustainable Development (Keeping A Promise: Towards a Sustainable Budget)*, Government of Canada, 1996.

These tax exemptions are both horizontally inequitable, by benefiting one group in ways that are not available to others, and vertically inequitable by providing the greatest benefits to those who are already economically advantaged. As discussed previously, most people place more weight on vertical equity than horizontal equity. This indicates that exempting employee transit benefits from income tax would be overall more equitable than current practices because horizontal equity impacts are offset, while the proposal would increase vertical equity by making people who are currently disadvantaged better off.[92]

As discussed in Section V, the Canadian population is highly urbanized. Most Canadian commuters have access to public transit or van pool services, and most will probably have the option of commuting by transit for at least a portion of their work lives. The portion of commuters served by transit is expected to increase in the future due to increased urbanization. Therefore, this benefit could eventually be accessible to a majority of commuters.

3. "Transit Service Already Receives Subsidies"

Some critics point out that public transit service is subsidized at the local and provincial levels, with the implication that a federal tax exemption is unjustified to create parity between driving and transit for either equity or economic efficiency. However, existing transit service subsidies provide a different function than would a federal transit benefit exemption. Existing subsidies provide a basic level of mobility for non-drivers and a less expensive alternative to highway construction. They are comparable to local roadway expenditures.[93] Peak period transit travel is virtually unsubsidized in terms of operating costs because load factors are high.

Although transit service subsidies are approximately equal *per passenger kilometre* to automobile subsidies costs (including free parking, roadway facilities, congestion externalities, and external accident costs),[94] automobile users receive a much larger *per capita subsidy*, since drivers tend to travel much more per year than transit users.

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[92] Even this proposal would not fully offset this inequity, since the value of an urban parking benefits is likely to be significantly larger than the value of a transit benefit, so drivers would still receive greater benefits.

[93] Many people are under the misimpression that automobile users fund all roads through fuel taxes and registration fees. Although these can be considered to pay for provincial highways, local roads are completely locally funded.

[94] For example, one study estimates that peak period automobile travel external costs average 21.2¢ per passenger kilometre, while bus external costs (including operating subsidies) average 10.6¢ per passenger kilometre. KPMG, *The Cost of Transporting People in the British Columbia Lower Mainland*, Greater Vancouver Regional District (Burnaby), 1993, Appendix C, p. 6. Also see Todd Litman, *Transportation Cost Analysis*, Victoria Transport Policy Institute (Victoria), 1996.

4. "Transit Promotion is Not a Federal Responsibility"
Some critics argue that local and provincial governments have other options for promoting transit. This is incorrect. Although local and provincial governments can develop transit systems and control land use, extensive research indicates that fiscal incentives are essential for effective TDM. No matter what other policies are implemented at the local or provincial level to promote transit, they will be approximately 20% less effective than would be the case with tax exempt transit benefits.

The Transportation Association of Canada, the Federation of Canadian Municipalities, and transportation planners emphasize that changes in Federal tax policy are critical for successful transportation demand management. Local actions simply cannot compensate for the existing economic bias toward driving that results from existing income tax policy. Without this change transit service will continue to be underused, and therefore inefficient.

XI. Conclusions and Recommendations

Current federal income tax policy is both economically inefficient and unfair because it provides automobile commuters with a valuable benefit that is unavailable to those who use other modes. This policy is at cross-purposes with local, provincial and federal transportation objectives to develop a more efficient and sustainable transport system.

Federal income tax exemptions have a significant leverage effect. They induce employers to provide benefits that meet exemption criteria. As a result, most Canadian employees are offered parking benefits but virtually none are offered transit benefits. The total value of untaxed parking benefits represent a $1,772 annual economic incentive to commute by automobile rather than public transit, since transit users receive neither employee subsidies nor tax exemptions.

Since parking benefits are part of employee compensation packages, they represent reductions in wages or other benefits for all employees. As a result, non-drivers are subsidizing the commuting costs of drivers. Similarly, since tax exemptions must be offset by other tax increases to maintain a given level of revenue, transit users currently bear a portion of the income tax payments forgone by parking benefits, further causing transit users to subsidize drivers. This is both vertically and horizontally inequitable because non-drivers tend to be physically, economically and socially disadvantaged relative to drivers.

The proposed employee transit tax exemption is one of the few financial instruments available to support transportation demand management efforts, and one of the easiest to implement. It has been widely recommended by transportation professionals, public officials and organizations representing a variety of interests to help address a number of economic and environmental problems.

Experience in other countries indicates that 10-30% of auto commute trips would shift to transit among transit benefit recipients, depending on conditions. This represents 5-20% reduction in automobile commuting by employees offered this benefit. The impact of this proposal will be limited by the portion of employers would offer such a benefit, which is likely to be low in the short term but could become significant over the long term. If implemented as part of a comprehensive TDM program it could reduce a significant portion of expected growth in urban peak period traffic. Impacts should be greatest under conditions where the benefits are greatest: peak period travel in large urban areas.

The resulting reduction in automobile commute travel would provide a number of benefits to business, employees and society, including reduced traffic congestion and roadway capacity expansion costs, parking cost savings, energy savings, reduced air emissions, traffic accident reductions, increased revenue and operating efficiency for transit agencies, and more choice for individual workers. The estimated monetized value of these benefits could total tens of millions of dollars during the first decade of implementation, and billions of dollars in benefits over the longer term.

No significant objections to this proposal have been identified. The only true costs identified are minor transition costs associated with any policy change. These are small in magnitude, particularly when compared with total benefits. Unlike many other transportation strategies there are no ongoing program costs or spillover effects identified. The possible reduction in tax revenue is found to be small. If transit benefits induce a high mode shift they could even increase tax revenue. Tax revenue reductions are actually economic transfers rather than true resource costs, while parking cost reductions represent true resource savings, providing economic productivity benefits. At any level of coverage, estimated revenue reductions from this proposal are approximately half of estimated increase in transit agency revenue, and more than an order magnitude smaller than the estimated monetized benefits associated with reductions in urban peak automobile travel.

The objection that tax exempt transit benefits would be unfair to commuters who are not offered them or cannot use transit has little apparent merit. Many tax policies, including several tax exemptions recently announced by Revenue Canada, provide benefits that are unavailable to most tax payers. Although many commuters cannot make use of transit benefits at a particular point in time, it is likely that most can use transit sometime during their working lives. This proposal would significantly increase horizontal equity by providing transit commuters with benefits comparable to what automobile commuters receive, and vertical equity by benefiting low income and disabled employees.

It is virtually impossible for local transit encouragement efforts (such as including parking management, road pricing, HOV facilities, and transit service improvements) to completely substitute for this proposal. Effective demand management requires financial incentives. Virtually any TDM program would increase its mode shift by 10-30% among employees who are offered this benefit. To put this another way, failing to offer transit tax exemptions significantly reduces the effectiveness of other TDM efforts.