

**What if the TTC disappeared?
What would be the economic, environmental
and health impacts on Toronto and its residents?**

A photograph of an empty subway station platform. The walls are covered in light-colored square tiles. Two black rectangular signs are mounted on the wall. The sign on the left contains the text 'TORONTO WITHOUT TRANSIT?' and the sign on the right contains 'WE COULDN'T AFFORD IT.'. A wooden bench is visible in the foreground on the right side. The floor is made of light-colored tiles.

**TORONTO
WITHOUT
TRANSIT?**

**WE
COULDN'T
AFFORD IT.**

A SPECIAL REPORT
By **Marilyn Churley**

ABOUT the TTC

The Toronto Transportation (later Transit) Commission was created in 1920 by an Act of the Ontario Legislature following a municipal public referendum that approved public operation of all streetcar networks in the growing city. The TTC then purchased and took over management of Toronto's privately owned transit services when their franchises ended in 1921.

The TTC expanded steadily and the first subway, on Yonge Street, was completed in 1954, the year that Metro Toronto was created by merging several suburbs with the core city.

The TTC today is the third largest mass transit system in North America, after those in New York City and Mexico City. It operates three subway lines and one rapid transit line with a total of 69 stations. There are also 149 bus and streetcar surface routes.

In 2007, the TTC carried about 450 million passengers. The TTC's Wheel-Trans service provides door-to-door services for persons with physical disabilities for the same fare as other riders.

The TTC employs approximately 11,000 people; most are represented by the Amalgamated Transit Union Local 113, which was founded in 1899.

An excellent capsule history of the TTC and its privately-owned predecessors can be found at <http://transit.toronto.on.ca/spare/0012.shtml>.

ABOUT MARILYN CHURLEY

As one of Ontario's most prominent environmentalists, Marilyn Churley has been at the forefront of influential environmental legislation and activism for more than 25 years. In 1983 she co-founded Citizens for a Safe Environment to stop polluting garbage and sewage incineration along Toronto's waterfront. She also served as Executive Director of the Canadian Environmental Defence Fund.

First elected to Toronto City Council in 1988, she founded the City's Energy Efficiency Office as a keystone agency to help Toronto reduce pollution and to address climate change. She was elected to the Ontario legislature in 1990 and re-elected in 1995, 1999, and 2003 by some of the widest margins in the province. She was the first female Minister of Consumer and Commercial Relations, the first female Deputy Speaker of the Ontario Legislature, the Ontario New Democratic Party's Deputy Leader and critic for the Environment, Women's Issues and Democratic Renewal. She was named 'Best MPP' (Member of Provincial Parliament) by Toronto's NOW Magazine several times.

In addition to her work on environmental issues, she has been a leading activist on numerous social issues: affordable housing, accessible day care, adoption disclosure legislation, equality rights for women and minorities, and support for the arts and Toronto's film industry.

Published by ATU 113
812 Wilson Ave. Downsview ON M3K 1E5
WeMoveToronto.ca
March 2008



Printed in Canada by union labour on 100 percent post-consumer recycled, processed chlorine free paper using vegetable based inks.

ABOUT this REPORT

The idea behind this study was to set out a concise but vivid conceptual baseline for ongoing public discussion about the Toronto Transit Commission. What would happen to our city if the TTC just disappeared? What would be the impacts, specifically the financial costs?

When I began discussing this idea with others, the objectors fell into two camps. The first was that the premise was too unrealistic to be useful. "It's not going to happen, so why bother thinking about it?" My response was borrowed from Joni Mitchell: "You don't know what you got 'til it's gone." How can we understand the value of something we take for granted unless we at least imagine what it would be like if it were no longer there? By thinking about the cost of eliminating public transit we will be able to see more clearly the common sense of preserving and investing in it.

The second camp said that however useful such an exercise might be, it was impossible to achieve. There would be no way to calculate, even roughly, the dollar value of all the impacts of transit disappearance. My response to them was: "You're right." As just one example, it is impossible to determine the true cost of even a single additional premature death due to smog or traffic tragedy. Some of the common costs can be quantified – and have been – but the personal costs are incalculable, even though they are real. So this study, actually a meta study that draws from much prior research, confines itself to what can be calculated. My conclusions are therefore quite conservative. The actual financial value of the TTC to Toronto is much higher than what can be credibly measured. I hope that future studies take us ever closer to determining its true value. Nothing but good can come of that.

I want to thank Local 113 of the Amalgamated Transit Union for funding this study. Although they obviously have an interest in this, they neither asked for nor gave any input on its methodology, structure or conclusions. This study was my idea and I am solely responsible for its contents. But I did not work alone. I am very grateful for the enormous amount of research and editorial assistance from Sally E. Miller. The value of her organization, insight and clarity was, in a word, incalculable. Thanks as well to Elaine Shin at the Toronto Board of Trade, Steve Munro, Toronto public transit advocate, Franz Hartmann, Executive Director, Toronto Environmental Alliance, Todd Litman, whose knowledge in this area is truly encyclopedic, and the many others we consulted.



Marilyn Churley



INTRODUCTION and SUMMARY

What would the City of Toronto be like without public transit? What if we woke up one day and all of our public transit infrastructure had simply vanished? How would we get to work, renew a health card, get to class, meet friends downtown or go to the theatre? How many more car crashes would occur daily? How many more smog days would come from the additional car travel? How much would it cost Toronto to lose the TTC?

This report calculates a loss to Toronto of almost 12 billion dollars each year without public transit. 53% of the loss is economic; 30% is in the cost of increased travel time for individuals. As each of the more than 10,000 TTC employees goes about their job they are saving Toronto residents and businesses about a million dollars a year. If the TTC disappeared, it would cost every one of Toronto's 2.5 million residents almost \$4,700 a year in economic, environmental and health impacts.



Many of public transit's benefits to the economic, social and environmental health of our city are invisibly integrated into our daily life. Public transit eases traffic so that we can arrive at our jobs, and so that food, building materials, and other goods can reach their downtown destination in a reasonable amount of time. Those who ride the TTC (1.3 million each day) help to reduce car crashes and car crash costs in medical and emergency services. Transit riders help to reduce downtown emissions, and often find space on the subway or bus to read or study, do some work, or socialize with friends. Buses and subways reduce drinking and driving. For the 25% of Toronto residents without cars, the TTC is also essential for getting groceries, getting to work, seeing friends, getting

to school and accessing government offices.

Many of us understand the personal benefits of the TTC: saving us the cost of maintaining a vehicle, getting our children safely to and from after-school activities, and so on. It is harder to recognize the millions of dollars in economic revenues, business activity, medical benefits and environmental conservation that we receive as a community. These benefits together total billions of dollars annually from the TTC alone, not including GO transit and other municipal transit services in the GTA region.

Downtown business revenues depend on access through public transit. If transit riders had to switch to cars, taxis, motorcycles, bicycles or walking, there would inevitably be a reduction in downtown economic activity. Some places would go out of business; over the years more jobs would be lost and tax revenue decreased as the long-term effects spiraled outwards.

As a study for the World Bank reports, the most efficient cities of 37 major metropolitan areas also have the best transit systems (Kenworthy et. al. 1997 from SECOR 2004). In addition, Toronto cannot wait any longer to respond to the demands of increasing traffic delays, rapidly increasing health costs from smog and accidents, and the growing inaccessibility of jobs, services and goods to the people of the city who must or would prefer to use transit. This report will add to the growing awareness that increased investment in public transit is not only economically sensible but vital if our city is to continue to grow and prosper.

But the buses, streetcars and subways do not operate and maintain themselves. People make the system work; people with skills and a commitment to getting the uncountable details right. Most TTC employees are members of Local 113 of the Amalgamated Transit Union. The savings or avoided costs they collectively provide averages out to over one million Canadian dollars per worker annually. The loss of these benefits would bring a city the size of Toronto to a grinding halt within a few days, leave us choking in ground-level smog, and would no doubt lead city leaders to prioritize the immediate creation of a strong public transit system!

This report specifically looks at the economic, environmental and social costs of the loss of transit in the following categories:

- **Economic**
- **Environment and Energy**
- **Travel Time**
- **Employment**
- **Medical**
- **Vehicle Operating and Ownership**

Many other categories of costs exist. They are noted in each section, but additional data specific to Toronto is not available to assess the full impact (such as the cost of additional sprawl, or the loss of the property value premiums that occur near transit access). If those costs and impacts were factored in no doubt the value of the TTC and each of its workers would increase dramatically.

The loss of public transit in Toronto would mean more than:

- **\$6.2 billion in lost economic benefits**
- **\$23 million in environmental and energy costs**
- **\$309 million in additional medical expenses**
- **\$3.5 billion in additional travel time costs**
- **\$1.5 billion in new vehicle operating and ownership costs**
- **\$195 million in long term highway and parking construction costs**

A total of about \$12 billion, or over \$1 million per TTC worker annually!





Over 22% of Toronto commuters use the TTC to get to work. 25% of Toronto residents do not own a car.

The Economic Impacts

The TTC is one of Toronto's most important economic drivers. The economic costs of losing Toronto's transit system would be extensive, with an impact on many categories of economic benefits and economic development. The effects would be both immediate and long-term.

Immediate effects include loss of access to jobs, goods and services. Toronto households without cars, calculated at about 25% of the population (943,300 households in 2001), are particularly affected. In addition to jobs lost from the transit sector itself, many other jobs would be lost because many people simply could not get to them.

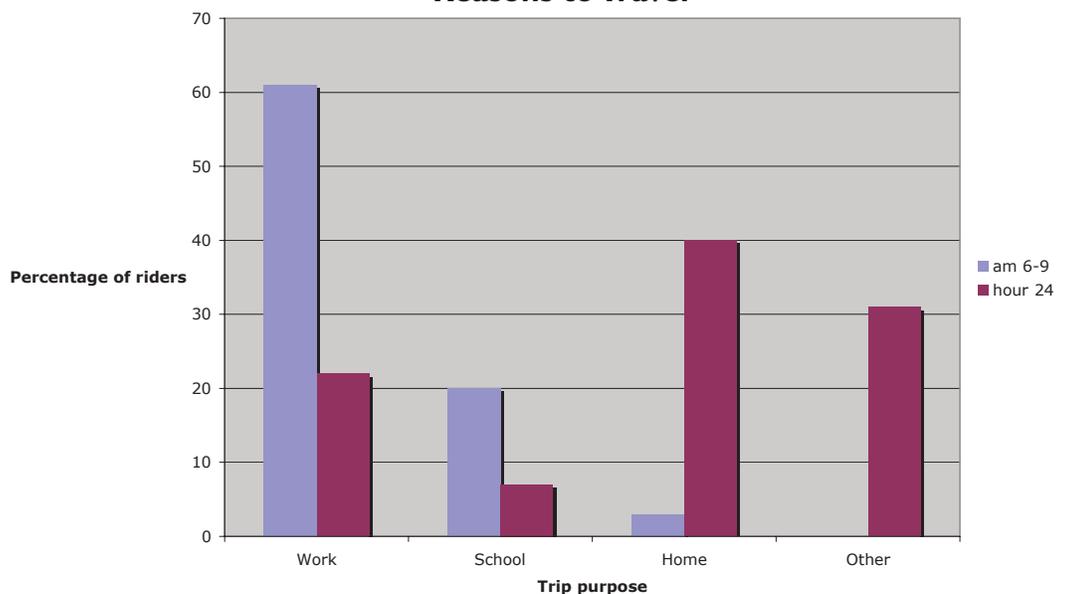
Without public transit in Toronto, about 150,000 people would lose their jobs, totalling around \$3.5 billion in lost income in the area, with corresponding effects on the local economy and support structures. The cost of the movement of goods would double, adding almost \$2 billion to freight costs. Business revenues would shrink by \$750 million.

The TTC provides over 10,000 jobs directly, including bus drivers, subway drivers and security personnel, management and administration, ticket collectors, maintenance and track workers. Over 22% of commuters use the TTC to get to work each day. At the morning peak hours from 6-9 am, over 60% of riders are on their way to work. Although many of them would be able to switch to private transportation, work from home, or bike, total income lost from a conservative estimate of all the factors totals \$2.9 to 4.2 billion in the cost of job loss annually. One study found that if even 5% of transit riders worked while commuting, the total productivity value alone is about \$7.3 million for a city of Toronto's size and ridership (MKI 2003).



Over 200,000 Toronto students use the TTC to get to school.

Reasons to Travel



*Source: 2001 Transportation Tomorrow Survey, University of Toronto

Reasons to Travel

If there were no transit, access to downtown shopping and recreation would be curtailed. Business sales would be affected, and cultural centers (museums, theatres) would suffer economically as well. A survey conducted by Ipsos-Reid during the 2001 Vancouver transit strike found that downtown merchants reported 10-30% reductions in sales during the strike. In the late 1980s, a survey reported that 13% of all TTC trips were for shopping purposes (MKI 2003).

Transit expenditures tend to be spent regionally rather than internationally. In Montreal, five times as much is spent regionally on supplies, spare parts, etc. for transit as compared to private transportation. The TTC's billion dollar annual budget is calculated to achieve an economic multiplier effect worth over \$750 million. In Montreal, which has a very similar ridership and transit system, although the population is lower overall, the public transit system was found to increase local incomes by almost \$1 billion (SECOR 2004).

It is cheaper to travel by public transit; much of the money saved is transferred back into the local economy. Transportation savings are estimated at \$570 million per year in Montreal (SECOR 2004), and generally average US\$1/passenger mile (Litman, 2006). These savings tend to be spent locally and would be lost as people scrambled for their cars if the TTC were to close (see Vehicle costs).

Philadelphia's SEPTA transit system, comparable to Toronto's, was found to return \$3 in transportation benefits for every dollar spent; the total economic impact on both region and the state is \$9 for every dollar spent on SEPTA (TCRP 20: 25). The study, conducted by the Urban Institute and Cambridge Systematics, predicts the effects of a shutdown of the SEPTA system: 175,000 loss in employment, \$10.1 billion loss in annual personal income, \$16.3 billion loss in annual business sales, \$632 million in local and state revenue loss. We can see from these figures that our study's estimate of 12 billion dollars in economic impacts from a TTC disappearance is very conservative.

The freight sector receives a particularly high impact from well-managed traffic; the fewer cars on the road, the easier it is to ship goods around and to the city. The Canadian Urban Transit Association (2003) calculates current (2001) costs to the movement of goods in Toronto at \$1.95 billion. If congestion for goods movement were to double, not at all unlikely if there was no public transit, the annual cost of goods movement would increase by almost \$2 billion.

Costs for other cities are lower (Vancouver is estimated at \$519 million), but Toronto is already operating near or at capacity, with several main arteries at close to peak condition throughout the day. Freight depends more on the main arteries than does private transportation and is more adversely affected by increased congestion.



The movement of freight in and out of Toronto would be made much more expensive as traffic congestion increased.



The polluting emissions from tailpipes are only the last of many types of environmental damage done by the exploration for, refining and transport of oil.

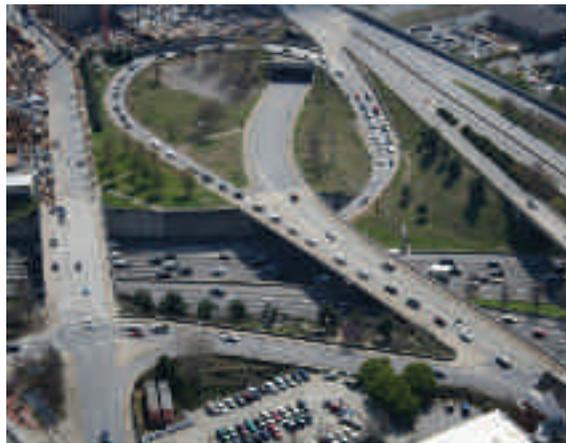


One Toronto subway line moves the equivalent of six fully-packed Don Valley Parkway lanes.

Building and maintaining more roads to accommodate increased traffic due to loss of transit would strain public funds and reduce the amount of land for housing, green space and other important purposes.

A study for the Board of Trade Metropolitan Montreal (SECOR 2004) estimates that an addition of 1000 cars to congested networks creates line-ups almost 6 km long (see Travel Time costs). A recent Transport Canada study estimates the cost of urban congestion in Toronto at \$2.3 to \$3.7 billion in 2006 (2002 dollars). Travel time, emissions and fuel costs (generally included in congestion figures) are calculated separately here. The Texas Transportation Institute estimates the costs of the additional delay and fuel from a no-transit scenario in 437 urban areas to be \$10.2 billion; ridership is calculated to be approximately 7 times higher in Canada than in the areas studied by the TTI (Schrank and Lomax 2007).

The loss of transit would also mean the loss of the property value benefit that accrues to residences and commercial properties near transit stations. According to a University of Toronto study, the value of properties near transit stations increases \$4000 for every \$225,000 in market value. Parking costs and roadway costs would sky-rocket (see Vehicle costs). The city would quickly decide to build more roads to facilitate traffic, and the long-term costs of construction and maintenance would strain city budgets for many years. Medical costs and demand would also accelerate (see Medical costs).



Finally, additional long-term economic effects would include the considerable expense of additional car-oriented development (i.e., sprawl). Transit oriented development (TOD) has been shown to be more efficient and economically effective for a region. Litman reports that smart growth (that is, dense development centred on transit hubs) provides

reduced development and public service costs, consumer transportation costs savings, economies of agglomeration, more efficient transportation, improved transportation choice and housing choice, community cohesion, preservation of greenspace and wildlife habitat, reduced air and water pollution, reduced resource consumption and reduced heat island effect.

Development benefits centering on the central business district, that tend to depend on transit, would be lost. For instance, it is estimated that the Sheppard subway brought economic benefits totaling \$2.3 billion by 2003. It is estimated that transit oriented development in the GTA could save \$12.2 billion over 25 years (Sierra Club 2003).

Research has shown that transit benefits increase over time, and in some cases only become evident in long-term accounting (Litman 2006). A study of the economic impact of investing in Chicago's transit system showed the majority of benefits occurred in the later years of a 20-year analysis period.

Loss of Employment

In 2002, the TTC reported 10,343 employees. For our base year (2001), employees are estimated at around 10,300. In addition to these, the loss of transit would mean job loss for the local residents who could no longer reach job locations. Job access would be particularly reduced for youth as well as older people, who are much less likely to have access to cars. Some would be able to walk or ride a bicycle, but the realities of the City of Toronto are that it is quite bike unfriendly, even in good weather, with dangerous and unrepaired roads in the outlying areas, and few bike lanes. According to the City of Toronto's "2005 Toronto Collision Clock", one cyclist was injured every 8.6 hours. One person was killed on Toronto's roads every 6.2 days, including pedestrians, cyclists and motorists.

The lack of mixed use neighborhoods, even within the city limits, means that people often live a considerable distance from their place of work, even if they live downtown.

178,000 GTA jobs could be lost without transit. This unemployment would result in a total income loss of up to \$4.1 billion annually.

The cost of sprawl would be particularly evident in the challenges of job access. In addition, almost 200,000 new workers would be looking for a new job simultaneously. Support services for job transition would be pushed well beyond capacity.

In the long term, the reduction of business revenues downtown (see Economic Costs) would lead to additional job loss. In Montreal, research has shown that transit generates 1.7 times as many jobs and 2.5 times the jobs and income as the private car sector (SECOR 2004). Another study shows that \$1 billion spent on transit generates 7,000 more jobs than the car sector (Aschauer, quoted in Alvord 2000).

Additional Travel Time

Travel time is usually estimated as a percentage or multiple of wages, depending on the level of congestion. Without current data about traffic flow speeds, level of congestion and times of day, increased travel time is estimated to increase morning peak period trips by 65%, and other trips by 20%. Given the high level of congestion already on Toronto streets and highways, and the homogeneity of destinations during the morning rush hour (the majority of travelers heading to or towards the downtown core), this estimate may be low.

A Bay Area study in California estimated that without transit the morning rush traffic would back up 26 miles and move at an average of 9 mph. Rush hour



\$1 billion spent on transit generates 7,000 more jobs than the car sector.



Many small businesses in Toronto would close if there was no public transit to bring both staff and customers.



would last seven hours (Litman, 2006). If one multiplies these effects for the greater Canadian use of transit, the delays become absurd; the city traffic would no longer be moving, leading to other more serious problems of abandoned vehicles, violence, etc. These are not calculated here, but the extremity of the impact of having no transit in Toronto should not be underestimated and dismissed with a “people would adapt” simplification.

With a modest 65% increase of travel time for peak trips, and only 20% for other times, additional travel time costs without transit are estimated at almost \$3.5 billion. This assumes average Toronto wages of \$12/ hour based on census figures for 2001.

This report relies on much more modest estimates of the effects of losing transit. In this scenario, a regular half hour morning commute would increase by about 20 minutes, while regular trips for groceries, etc., would increase by 20%. Overall, we might be spending five or six more hours each week in our cars. We might have to get up rather earlier to get to work or to get the kids to hockey, or to make it to church. In homes with long commute times for the workers, dinner hours might be later, or families would have to eat in shifts on some days.

If business continues as usual, commuters can still expect a gradual increase in congestion and negative travel time impact. “Using a \$20/ hour cost to individuals... the average increase of 12 minutes for the journey to work for commuters in the GTA in 2021 would represent an extra \$28,000,000 per day in congestion costs, or an astonishing \$7,000,000,000 per year” (“Transit Means Business” Metropolitan Knowledge International for CUTA, 2003). Once again, this figure underlines the fact that, for this study, we have been conservative in our calculations of the impact of transit loss.

Vehicle ownership and operating costs

In the city without transit, we would peer through a brown haze to see over 178,000 additional cars on the road on any given business day. These cars would clearly be moving very slowly, and would wait in long impatient streams around the city, spewing additional emissions and costing their owners thousands of dollars for the privilege of sitting in traffic. When they did finally reach their destination (almost 52,000 additional cars in the morning rush hour alone), it is doubtful whether they would find parking. It's hard enough as it is. A 300-cars-per-level parking garage to accommodate all these new cars would be three times the height of the CN Tower.

The American Public Transportation Association (2007) estimates that almost 20% of every household dollar is spent on transportation, and 94% of that is spent on cars. The short-term costs of all these new cars would come to almost \$1.5 billion. The long term costs of building new highways and parking structures, as well as the cost of new residential parking and the loss of green space in front lawns, would be enormous, easily over \$200 million a year (Litman, Online Encyclopedia 2007).

In the GTA, an average increase of only 12 minutes to commute to work would mean an extra \$28 million per day in congestion costs.



A parking garage to accommodate the additional cars on the road if the TTC disappeared would be three times taller than the CN Tower.

Increased car travel without transit means increased car ownership. At about 50 cents per kilometre for all ownership and operating costs (Canadian Automobile Association 2007), additional vehicle costs total about \$1.5 billion annually. The cost of new highways and parking facilities would skyrocket, adding almost half a billion to the city budget for parking, and another half billion for the new highways required to accommodate the traffic! This does not include latent demand, which is the additional driving that occurs when new highways are built, increasing until a new balance of congestion is reached.

While average bus occupancy is about 20 people, the average car occupancy is 1.5 or less. The estimates in this report assume that only half of the stranded transit riders would switch to cars; in fact, research suggests that in Canada people are much less likely to be able to work permanently from home than they



According to the CAA, it costs about 50 cents per kilometre to operate a car that will, in all probability, end up here.

are in the U.S., so it is likely that more of them would be looking for a private vehicle to drive to work. According to the Canadian Automobile Association, it costs about 50 cents each vehicle-kilometre to operate a car, including fuel, depreciation, insurance, parking, emergency services and vehicle and vehicle waste disposal costs.

It is estimated that one additional lane is required for every 2000 additional cars under congested conditions. Each new

kilometre of highway lane costs \$5 million in 2007 dollars (Litman 2007). The long-term costs of car-dependent culture include the costs of oil extraction, the loss of the land for other purposes (opportunity cost of land), as well as the loss of option value. Option value refers to the value placed on public transit by people who don't use it most of the time, but like to know it is an option in case their car is in the shop, a snowstorm is predicted, they are trying to access a crowded area for a parade or street festival or they just want a break from driving.



For about the cost of 30 minutes of parking in downtown Toronto, the TTC can take you there from any point in the city.



The ripple effect costs of additional car crashes, such as the lost time and additional stress of those caught up in the aftermath congestion, are incalculable.



The very young and the very old are the most likely to suffer from the greater smog due to increased car use.



Additional Medical Costs

350,000 new car trips per business day means more car crashes. Fatalities from public transit are about 10% the rate of car crash fatalities (Litman 2006). Car crash costs can be estimated at around 6 cents/ kilometre, adding almost \$100,000 in costs per business day to Toronto (Litman 2006). The cost of mental and emotional distress, of job reduction and disability, cannot be captured by the bald statistics of medical costs.

Injuries and fatalities from car crashes are the most common cause of death and injury in Canada. Without public transit, car trips in Toronto would increase by a significant percentage (over 350,000 trips each business day). The additional congestion, frustration and stress would increase the dangers of driving even more.

In a nationwide study, MKI estimates additional costs to the Canadian economy of \$1.1 billion in crash costs, not including pain and suffering, if there was no public transit. Increased traffic accidents cost taxpayers money in government services, emergency response, medical costs, and in reduced travel time for all affected drivers. Lost productivity and the costs of pain and suffering add to the costs of driving accidents.

Without transit, an additional 350,000 car trips on business days plus a lower amount on weekends would result in numerous additional crashes, totaling about \$30 million more in medical costs annually. Additional medical expenses from increased smog could reach almost \$300 million every year.

Transit also reduces the local smog levels. Cars are responsible for about 27% of local smog, which leads directly to asthma incidents and emergency visits to hospital, as well as premature deaths. The Ontario Medical Association conducted a study in 2001, updated with more long-term reporting in 2005, to show the grave effects of smog and air pollution in Ontario. A recent Toronto Public Health study reviews 2004 figures and calculates the impact at \$2.86 billion, a figure that is almost double the original estimate.

If we lost the TTC, other social effects would be felt by local residents; these include impacts to our health and quality (even length) of life. Transit riders almost always walk to and from transit stops. The ten or twenty minutes of walking each day have a significant impact on health.

The U.S. Surgeon General (1996) reports that increased inactivity from car-dependent cultures increases the risk of premature mortality, coronary heart disease, hypertension, colon cancer, and diabetes mellitus; inactivity also increases depression and anxiety. The costs of sedentary transport are likely to be as least as high as the costs of air pollution, and perhaps exceed crash costs as well (Litman, June 2006). A study shows that 30 minutes/ day of exercise, such as one gets walking to and from transit stops, can translate into an 11% reduction in mortality probability in later years (Litman, June 2006).



Wheel-Trans provides over 2.2 million rides a year to disabled Torontonians.

Transit also increases community cohesion, provides essential access to education and skills training with long-term economic effects and increases access to medical services, reducing the likelihood of expensive emergency care demand. Reduced transit decreases community walkability, increases pavement coverage and may threaten cultural resources such as historical landmarks that stand in the way of highway expansion (Litman 2006). Many of the social effects are incalculable but have significant impacts on the quality of our lives. An Orange County, California study estimates that without transit vans such as Toronto's Wheel-Trans system, many seniors would be forced into nursing homes, at the additional annual cost of U.S. \$35,000 per person (Alvord, 2000).

Environmental Impacts

As each red and white bus goes by or the subway car rumbles under our feet, we can know that they are contributing to cleaner air, cleaner water, less non-renewable fuel use and less vehicle waste. They help to preserve our green spaces from rampant highway construction, reduce traffic noise, help keep the urban forest green and thriving, and even, especially in the case of hybrid buses, considerably reduce the ecological footprint of our transportation on the planet.

“Public transportation produces about 90 percent less volatile organic compounds, more than 95 percent less carbon monoxide, and almost 50 percent less nitrogen oxides and carbon dioxide than private vehicles would if all the people who currently ride public transportation had to use automobiles, SUVs and light trucks for the same travel.” (Shapiro 2002). The MKI study of transit in Canada points out that transit emissions represent a tiny 1.1%, including school buses, while cars and light trucks account for a whopping 44.1%.

A very conservative estimate of the pollution costs that would result from a TTC disappearance totals almost \$24 million annually. As the costs of clean-up and the pressures on the environment rise, this number will probably increase as well.

Shapiro points out that Canadian use of public transit is about seven times the rate of that in the U.S., and that Canadian use levels “would save almost as much energy as the entire petrochemical industry burns every year, or more than a half-year’s supply of oil imports from Saudi Arabia.” He calculates that already in the U.S., public transportation saves more than 105 trillion BTUs of energy every year, or 855 million gallons of gasoline annually. For Canada, the figure would be higher per capita due to higher use, and even higher if hybrid buses become standard.

Public transit reduces other environmental costs as well, in decreased water pollution, lower vehicle waste disposal costs, the reduction of sprawl and the protection of green and farm space. One study has found a 16% difference in chronic medical conditions between high and low sprawl conditions (ICLEI 2003, from Litman June 2006).

“Everyone benefits from the TTC whether you use it or not. It helps move people around efficiently and helps keep our air clean. Traffic-related air pollution caused 440 premature deaths in Toronto in 2004 and the city’s poor air quality caused 1,700 people to be hospitalized.”

Dr. Rick Smith, Executive Director, Environmental Defence Canada



The TTC’s more than 4000 vehicle operators save hundreds of thousands of tonnes of greenhouse gases and other pollutants every year.



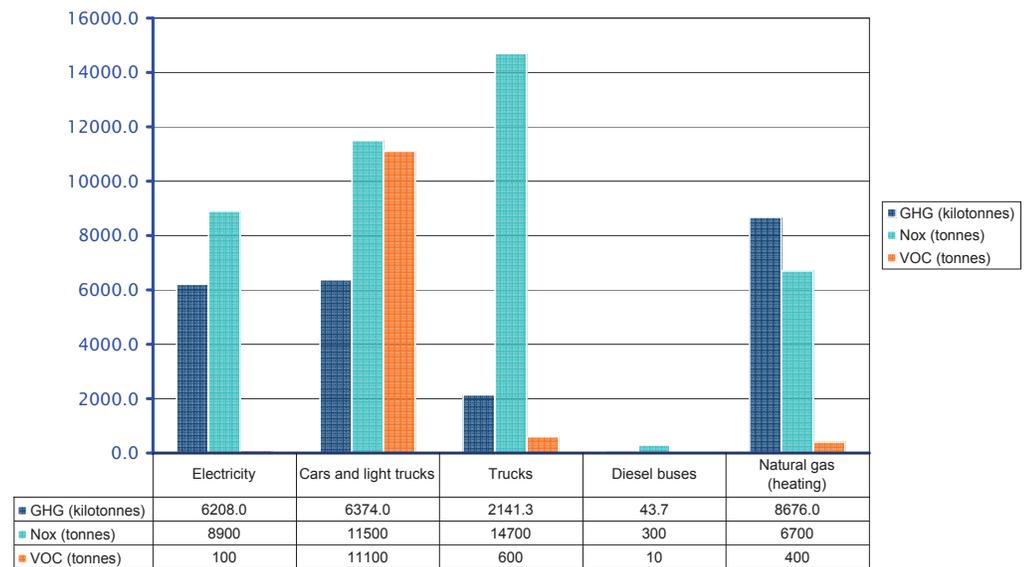
Cars and light trucks in Toronto produce nearly 150 times more greenhouse gases than the TTC's buses.

“An affordable, efficient TTC is key to developing a healthy, green Toronto. Without Toronto’s public transit system, the air would be much dirtier and more people would be dying prematurely because of smog related illnesses. And without an efficient, effective TTC, Toronto would have no hope in curbing global warming. Put simply, Torontonians can be proud of their TTC and how it’s helping all of us build a green Toronto.”

Dr. Franz Hartmann,
Executive Director,
Toronto Environmental Alliance

Putting dollar values to environmental and social goods is challenging; how does one put a price on getting extra years of life? Or spending more time with your family because your commute is shorter? Many benefits of public transit are priceless: better health, less stress, longer life, stronger communities. In this study the numerical figures combine an estimated emission and energy cost per passenger kilometre for the transit riders switching to cars (Litman 2006). The additional cost is almost \$24 million, and represents a very conservative figure for the environmental effects of losing transit in Toronto.

Toronto GHG and CAC Emissions chart



*Source: Greenhouse Gas and Air Pollutants in the City of Toronto, TAF, June 2007

WHAT WOULD the LOSS of TRANSIT ADD UP TO?

In a city the size of Toronto, the loss of public transit would mean a city that had ceased to operate. Lost revenue, decreased business activity and lost access to essential goods and services would skyrocket. In a nutshell, Toronto could not afford to lose transit. The loss is calculated in this study to total about \$12 billion annually in economic, social and environmental costs. Transit provides essential transportation, accessibility and equity for commuters, ensures a cleaner and safer urban environment, reduces the medical and environmental costs of car dependence and provides intangible additional benefits of physical activity, reduced sprawl, etc.

Every TTC worker provides, on average, services worth over \$1 million in avoided costs and direct benefits for businesses, governments and individuals. Save money, live longer, breathe better, reduce your risk of a car crash, enjoy friendly communities: what better reasons could there be to maintain and invest in public transit?

The next time a TTC bus whirs by, give it a thumbs up and say: "Thanks a million for giving us cleaner air, better health and saving us money too!"

TTC vehicles last over twice as long as they do in U.S. cities, thanks to the skill of ATU 113 members in the large Maintenance Department. They save taxpayers many millions of dollars a year.



NOTES on this REPORT

The key benefits to the City of Toronto from the TTC and, by extension, the work of members of ATU Local 113, are in the areas of the economy, energy and environment, medical costs, travel time and vehicle costs. The categories used for the final calculation were chosen by availability of data, avoidance of double-counting, and relative importance. Many transit and traffic studies focus on methods of easing congestion (which is usually largely a function of travel time). They tend to focus as well on short-term costs. These tend to distort the results in favour of car traffic: such studies will recommend additional roads or lanes, discounting the taxpayer cost into the distant future.

Studies have shown that increased road construction tends to generate more traffic, mobilizing latent demand (Litman 2006). The new lanes or highways quickly fill up again over a couple of years, to reach a new congestion equilibrium and to raise the call again for new roads. In addition, people who switch to cars tend to increase their travel at the same time, logging more kilometres, more emissions and more fuel use (Litman, 2006).

Transit development on the other hand tends to show increasing benefits over time, and to avoid the cost of additional traffic in emissions, vehicle operation and medical costs. Comprehensive transit evaluations form the basis of this report, as they include environmental and social benefits, as well as additional economic benefits beyond the basic travel time calculation. For the calculations for Toronto, travel time is only one of several factors.

A comprehensive transit evaluation based on direct surveys and data might increase these estimates several-fold. This transit sketch relies on existing city traffic data and the estimates calculated in comparable case studies, particularly Montreal and Vancouver. Each section reviews and compares the calculation of each factor, and provides explanations for related factors that are significant but were not included because existing data was deemed insufficient.

The most recent traffic data available for the City of Toronto is from 2001 (Transportation Tomorrow Survey, Joint Program in Transportation, University of Toronto). Calculations were based on 2001 figures for all categories, and 2001 dollars were used for final totals. Given the rapid increases in congestion in the GTA between 2001 and 2008, the numbers for all totals would no doubt be significantly increased over the seven-year period.

Note that comprehensive economic evaluation specific to Toronto is beyond the scope of this analysis, and would include an accounting of both costs and benefits. Numerous complex models exist for these calculations. Additional data and surveys, at this point unavailable for Toronto, would be necessary to complete a comprehensive evaluation for the city.

ADDITIONAL FACTORS NOT CALCULATED for this REPORT

Although the following impacts of the loss of public transit in Toronto were mentioned in the report, the costs of many are literally incalculable and the costs of the rest were uncertain due to lack of sufficient data. Therefore, these costs, though real, are not included in the \$12 billion figure arrived at through conservative assumptions and calculations.

Economic factors

- Long-term costs of sprawl:
 - Increased development and public service costs, lost economies of agglomeration, less efficient transportation, reduced transportation choice and housing choice, lost community cohesion, increased air and water pollution, increased resource consumption and increased heat island effect
- Loss of new jobs generated by ongoing transit development (greater for transit than cars)
- Loss of transportation savings
- Loss of transit premium for property values
- Cost of additional employment support and transition services
- Loss of transit option value

Social factors

- Cost of additional senior housing
- Cost of lost family time
- Cost of increased road rage
- Loss of cultural and historical resources and landmarks to highway construction
- Medical costs of increased inactivity

Environmental factors

- Loss of urban forest resource
- Loss of greenspace
- Loss of local agricultural resources
- Loss of wildlife habitat
- Opportunity cost of land
- Cost of oil extraction and associated pollution

RESOURCES

- Alvord, Katie, 2000. *Divorce Your Car: Ending the love affair with the automobile*, Gabriola Island, B.C.: New Society Publishers.
- American Public Transportation Association (2007). "Public Transportation: Benefits for the 21st Century".
- Canadian Automobile Association (2007). "Driving Costs".
- City of Toronto (2007). "Air Pollution Burden of Illness from Traffic in Toronto". From Medical Officer of Health.
- City of Toronto (November 2007). "Air Pollution Burden of Illness from Traffic in Toronto: Problems and Solutions". Technical Report. David McKeown. Toronto Public Health.
- Clark, Warren (Spring 2000). "Traffic Report: Weekday commuting patterns". Canadian Social Trends. Statistics Canada Catalogue No. 11-008.
- CUTA (Canadian Urban Transit Association) (2003). Prepared by Metropolitan Knowledge International. *Transit Means Business: The Economic Case for Public Transit in Canada*. Executive Summary and Full Report.
- Center for Transportation Excellence (U.S.) (N.D.). "Myths and Facts: Transit Overview".
- Clark, Warren (Spring 2000). "Traffic Report: Weekday commuting patterns" IN Canadian Social Trends. Statistics Canada.
- Delcan, with iTrans, ADEC (2006). "The Cost of Urban Congestion in Canada". Environmental Affairs, Transport Canada.
- Economic Modeling Specialists (1999). "Estimating Important Transportation-Related Regional Economic Relationships in Bexar County, Texas". Report completed for VIA Metropolitan Transit.
- ECONorthwest. Prepared with Parsons, et al. (July 2001). "Estimating the Benefits and Costs of Public Transit Projects: A Guidebook for Practitioners". Transportation Research Board, National Research Council, Report H-19.
- Feigon, Sharon, et al. (2003). "Travel Matters: Mitigating Climate Change with Sustainable Surface Transportation". Prepared by Center for Neighborhood Technology (Chicago). Transit Cooperative Research Program, Transportation Research Board, National Research Council. Washington, D.C.
- Forkenbrock, David J and Glen Weisbrod (2001). "Guidebook for Assessing the Social and Economic Effects of Transportation Projects". Transit Cooperative Research Program, Transportation Research Board, National Research Council. Washington, D.C.
- GPI Atlantic (November 2006). "The GPI Transportation Accounts: Sustainable Transportation in Nova Scotia". Prepared by Savelson, Aviva et al.
- HLB Decision Economics. "Cost Benefit Framework and Model for the Evaluation of Transit and Highway Investments". Ottawa, ON. 2002.
- Litman, Todd (December 1, 2006). "Evaluating Public Transit Benefits and Costs: Best Practices Guidebook". Victoria Policy Institute.
- Litman, Todd (June 2006). "If Health Matters: Integrating Public Health Objectives in Transportation Planning". Victoria Policy Institute.
- Litman, Todd (June 2006). "What's It Worth? Economic Evaluation for transportation Decision-Making". Victoria Transit Policy Institute.
- Litman, Todd (2007). "Travel Time" Section 5.2 from "Transportation Cost and benefit Analysis". Victoria Transit Policy Institute.
- Litman, Todd (July 2007). "Community Cohesion as a Transport Planning Objective". Victoria Transit Policy Institute.
- Litman, Todd (July 2007). "Developing Indicators for Comprehensive and Sustainable Transport Planning". Victoria Transit Policy Institute.
- Litman, Todd (2007). "Transit Evaluation: Determining the Value of Public Transit Service" (summary version). From TDM Encyclopedia, updated August 28, 2007. Victoria Transit Policy Institute.
- Litman, Todd (2007). Online Encyclopedia. Victoria Transport Policy Institute. <http://www.vtpi.org/tdm/index.php>
- McCullom Management Consulting (June 2004) for American Public Transit Association with FTA. "Transit Performance Monitoring System Results". Summary reports I, II and III.

National Center for Chronic Disease Prevention and Health Promotion (1996). "Physical Activity and Health – A Report of the Surgeon General". Summary downloaded from website <http://www.cdc.gov/nccdphp/sgr/summ.htm>.

Ontario Medical Association (2005). "The Illness Costs of Air Pollution: 2005- 2026 Health and Economic Damage Estimates". ICAP Summary Report. June 2005

Province of Ontario (2004). "Municipal Performance Measurement Program. "Summary of Toronto's 2004 Results".

Redefining Progress (February 2007). Talberth, John, et al. "the Genuine Progress Indicator 2006: Executive Summary".

Schrank, David and Tim Lomax (2007). "The 2007 Urban Mobility Report". Texas Transportation Institute, the Texas A&M University System.

SECOR (2004). "Public Transit: a powerful economic-development engine for metropolitan Montreal region". Chambre de Commerce du Montreal Metropolitain/ Board of Trade Metropolitan Montreal.

Shapiro, Robert J., et al. (2002). "Conserving Energy and Preserving the Environment: The Role of Public Transportation". American Public Transportation Association.

Sierra Club of Canada (February 2003). "Sprawl Hurts Us All! A Guide to the costs of sprawl development and how to create livable communities in Ontario".

Soberman, Richard M. (2001). "National Vision for Urban Transit to 2020: Final Report". Prepared for Transport Canada by IBI Group.

Taylor, Amy and Mark Anielski (October 2001). "The Alberta GPI Accounts: Transportation". Pembina Institute for Appropriate Development.

Toronto Atmospheric Fund (June 2007). Prepared by ICF International with Toronto Atmospheric Fund and Toronto Environment Office. "Greenhouse Gases and Air Pollutants in the City of Toronto: Toward a Harmonized Strategy for Reducing Emissions". Toronto Environmental Alliance. 2005 Toronto Smog Report Card.

Transit Cooperative Research Program, Transportation Research Board, National Research Council. Prepared by Cambridge Systematics, Inc. and Apogee Research, Inc. (1996). "Measuring and Valuing Transit Benefits and Disbenefits" (summary). TCRP Report 20. Washington, D.C.: National Academy Press.

Transport Canada (March 2005). Prepared by Cansult and TSi Consultants. "The Impact of Transit Improvements on GHG Emissions: A National Perspective".

Transport Canada (January 2002). Prepared by McCormick Rankin Corporation. "Urban Transit in Canada: Taking Stock".

Transportation Tomorrow Survey (2001). Joint Program in Transportation University of Toronto. <http://www.jpint.utoronto.ca/dmg/index.html>.

U.S. Department of Health and Human Services (1996). Physical Activity and Health: A Report of the Surgeon General.



At a very conservative estimate, the TTC is worth nearly \$12 billion per year in economic, environmental and health costs to Toronto. That's 50 per cent more than the entire budget of the City of Toronto. That's also over one million dollars per year per TTC worker. Each one is literally Worth a Million.

**WORTH^A
Million.ca**
Toronto's Transit Workers

ATU 113

