Outcomes Report on
Federal Gas Tax Fund and Public Transit Fund
Contributions to the City of Toronto, 2005 - 2008

September 30, 2009

INTRODUCTION

This report describes the investment activity and outcomes resulting from the Government of Canada's *Gas Tax Fund* (GTF) and *Public Transit Fund* (PTF) contributions to the City of Toronto between 2005 - 2008.

Section One of this report provides background information on the Gas Tax Fund and Public Transit Fund and the amount of money received by the City of Toronto through these programs between 2005 - 2008.

Section Two offers contextual information on the science, policy objectives and planning frameworks which guide the City of Toronto's investments in public transit.

Section Three provides information on the Toronto Transit Commission (TTC) and the specific investments in public transit infrastructure made by the City of Toronto with the Gas Tax Fund and Public Transit Fund contributions it received between 2005 – 2008.

Section Four reviews the public policy objectives and outcomes supported by these investments, along with pertinent qualifications and contextual information.

SECTION ONE

The Gas Tax Fund

The Government of Canada's GTF program provides a critical source of stable, predictable, long-term funding to Canadian municipalities for investment in infrastructure which supports the environmental sustainability objectives of:

- reduced greenhouse gas emissions
- cleaner water, and
- cleaner air

The *Canada - Ontario - Association of Municipalities of Ontario - City of Toronto Agreement on the Transfer of Federal Gas Tax Revenues Under The New Deal for Cities and Communities* was signed on June 17, 2005. Under this agreement, Toronto will receive $407.3 million over 5 years (2005 – 2010) to enable net incremental capital spending on eligible public transit infrastructure.

Toronto allocates all of the funding it receives through the GTF to finance, expedite and enable vitally important investments in the Toronto Transit Commission's capital budget plan. Section Three of this report provides details on the investments made by the City of Toronto with GTF contributions received between 2005 – 2008.

Consistent with the GTF's broader objectives, the goals of Toronto GTF investments are to achieve improvements in air quality and reduce greenhouse gas emissions. These goals are pursued by making public transit in Toronto more convenient and reliable, thereby increasing transit ridership and inducing a modal shift away from automobile use.

The Public Transit Fund (PTF) Program

Modeled after the Gas Tax Fund, the PTF program provided a one-time Federal contribution in 2005-2006 for investment in public transit.

The objective of the PTF was to benefit Canadians by catalyzing investments which:

- reduce greenhouse gas emissions and smog in urban areas by improving services and offering Canadians greater flexibility in their transportation options
- make public transit a more attractive transportation option so as to induce a shift from automobile travel to more fuel-efficient and cost-effective transit
- increase use of public transit and reduce congestion levels, further improving energy use and air quality, and
- promote economic activity and the competitiveness of urban areas through public transit

The *Canada – Ontario - Association of Municipalities of Ontario - City of Toronto Agreement on the Transfer of Federal Public Transit Funds* was signed on March 30, 2006. Under this agreement, Toronto received $98.4 million in 2006 for eligible public transit projects.

As with the GTF, the City of Toronto dedicated the entirety of its PTF allocation to eligible public transit projects included in the Toronto Transit Commission's (TTC) capital budget plan.

Government of Canada Gas Tax Fund and Public Transit Fund Allocations to Ontario and Toronto

	Allocation to Ontario (including Toronto)	Allocation to the City of Toronto
Federal Gas Tax Fund 2005 – 2010	$1,452.6 M	$407.3 M
Federal Public Transit Fund 2006	$155.2 M	$ 98.4 M

Working in Partnership in Pursuit of National Objectives

National environmental sustainability and economic competitiveness objectives can be effectively achieved when the Government of Canada, Government of Ontario and City of Toronto work in co-operation and partnership with each other.

The City of Toronto is the only municipality in Canada to be a direct signatory to GTF and PTF Agreements. As a party to these and other intergovernmental agreements, Toronto embraces its responsibility to participate in programs which yield tangible benefits for all Canadians.

SECTION TWO

The Contribution of Transportation-Related Gasoline and Diesel Fuel Combustion in Toronto to Greenhouse Gas (GHG) and Criteria Air Contaminants (CAC) Emissions

The impact of transportation on Toronto's environment is considerable. Research demonstrates that the main sources of emissions in Toronto stem from (i) natural gas combustion (largely for residential and commercial heating), (ii) electricity production, and (iii) the burning of gasoline and diesel fuel by millions of cars and trucks moving throughout the city every day.

In 2007, ICF International, in collaboration with the Toronto Atmospheric Fund and the City of Toronto's Environment Office, completed an integrated survey of both greenhouse gas (GHG) and criteria air contaminant (CAC) emissions from both City operations and the community at large[1]. The intent of the survey was to address the interconnected nature of the issues of climate change and air pollution, with a focus on determining the impact fossil fuel combustion in Toronto has on emissions of carbon dioxide, the principal greenhouse gas, and nitrogen oxides (NOx), the primary CAC. Among other noteworthy findings, this research showed that:

- In 2004, Toronto's energy use from all sources generated an estimated 23.4 Megatonnes of eCO2. Of this amount, fuel used for transportation accounted for 36% of total emissions, natural gas accounted for 37% and electricity generation was responsible for the balance of 26% of total emissions.

- With regard to NOx emissions, transportation-related emissions account for 63% of all energy-related emissions, and fully 79% of energy-related emissions which actually take place within Toronto itself (i.e. excluding electricity generation which actually takes place outside the city).

- Emissions of volatile organic compounds (VOCs) are highly concentrated, coming almost exclusively from gasoline-powered cars and light trucks.

- Excluding City of Toronto operations, gasoline used by cars and light trucks in Toronto account for approximately 28% of energy-related eCO2 emissions and 27 percent of NOx emissions.

Like so many reports before it, this study concludes that measures taken which favour public transit will have a positive impact on (reducing) eCO2 and NOx emissions.

[1] The full report entitled "Greenhouse Gases and Air Pollutants in the City of Toronto: Toward a Harmonized Strategy for Reducing Emissions" can be viewed at: http://www.toronto.ca/taf/pdf/ghginventory_jun07.pdf

Transit Supportive Policy & Planning Frameworks

Toronto is Canada's largest city. With 2.6 million people, it is the 5th most populous city in North America and home to approximately 8% of the nation's population. Toronto lies at the heart of the Greater Toronto Area (5.1 million residents) and serves as the central economic and transportation hub of the densely-populated (8.1 million inhabitants) region of southern Ontario known as the Golden Horseshoe.

Adopted by Toronto City Council in 2002, Toronto's *Official Plan* guides the city's physical, economic and social development. Key objectives of the Official Plan are to reduce auto dependency and achieve sustainable growth. To this end, the Official Plan designates future growth in areas that can support environmentally sustainable transportation, envisions an expansion of the city's transit system and services, and includes specific policy directions for:

- reducing travel demands and auto dependency and making transit, cycling and walking increasingly attractive alternatives to using the car;
- making more efficient use of transportation infrastructure to move people rather than move cars, thereby reducing car dependency;
- supporting intensification in targeted growth areas and plans for new development that support transit use and reduce transportation demand and auto dependency;
- improving the environmental sustainability of public and private city-building activities by reducing energy consumption and reliance on carbon-based fuels for energy; and
- encouraging development, redevelopment and infrastructure that will assist in achieving GHG emissions reductions, consistent with international, national and municipal targets.

The City of Toronto's *Climate Change, Clean Air and Sustainable Energy Action Plan*, adopted in June 2007, sets aggressive GHG and smog emission reduction targets for the city and identifies a range of actions that will need to be undertaken to achieve these targets. The 2050 reduction target (i.e. achieving an 80% reduction in GHG emissions from 1990 levels) implies a cap of around 1.3 million tonnes of greenhouse gases from the passenger transportation sector.

Toronto GHG Emission Reduction Targets

Reduce greenhouse gas emissions from the 1990 levels of ~ 22M tonnes per year:

- 6% by 2012 (Kyoto target)
- 30% by 2020
- 80% by 2050

Achieve a 20% reduction for locally generated smog causing pollutants from 2004 levels by 2012

The Climate Change Plan notes that a long-term sustainable transportation strategy will be needed to meet Toronto's emission targets, and suggests specific measures be taken including:

- investing in vehicle engines and fuel standards that will reduce emissions;
- creating financial incentives to utilize public transit
- securing stable funding for the operation and expansion of public transit systems;
- managing urban growth and development to create a high quality of life and encourage people to use alternative modes of transportation; and
- working with the Province, Metrolinx and GTA municipalities to investigate a road pricing regime for the GTA that will encourage people to use alternative modes of transportation, and dedicate revenues to transit improvements.

Through the implementation of these (and related) policy initiatives, the City of Toronto aims to reduce harmful emissions from the transportation sector through a combination of technical, behavioural and urban structure changes:

- Technical changes focus on improving engine efficiency and augmenting the use of less polluting fuels.

- Behavioural changes are realized when individuals can be persuaded to (i) alter their modal choice (i.e. chose to walk, cycle, or take transit instead of travelling by car), (ii) travel in the same vehicle together (i.e. increase average vehicle occupancy levels), or (iii) travel shorter distances or less frequently.

- Modifying the City's urban form or structure can be an effective means of shaping the overall level of transportation demand and individual decisions to use one mode of travel over another.

Strategic investments in public transit infrastructure can support all three types of change. For example, such investments can result in the purchase or retrofitting of transit vehicles that use cleaner burning, more efficient fuel. A transit system which offers frequent, reliable service to the places where people live, work and want to go will be patronized by more people (i.e. induce behavioural change). And the existence (or even promise) of adequate transit service itself can shape development decisions and result in more compact, environmentally sustainable communities.

The Official Plan projects an increase of 20% and 40% in people and jobs, respectively, in Toronto by 2031. It is against this background that substantial, absolute reductions in vehicle emissions will need to be achieved. Meeting this challenge requires a firm commitment to implementing policies and programs which will reduce auto dependency and support an environmentally and economically sustainable pattern of future growth and development.

With these goals in mind, investing in sustainable transportation infrastructure – and public transit in particular -- is a top priority for Toronto. Enabling the Toronto Transit Commission to maintain existing public transit infrastructure assets in a state of good repair and to boost the reliability, capacity and coverage of the City's public transit network is central to this effort.

SECTION THREE

Transit in Toronto – The Better Way

The Toronto Transit Commission (TTC) is an agency of the City of Toronto and is responsible for operating and maintaining the City's public transit services and infrastructure.

The TTC is the third largest transit operator in North America, after those found in New York City and Mexico City. Toronto residents depend more on public transit and less on private vehicles than do residents in most other large urban centres in North America, including Vancouver, Montreal, Chicago, Boston and San Francisco.

The TTC provides service to approximately 467 million customers annually. On a typical workday, 1.5 million trips are made on the TTC. During peak hours, the TTC accommodates 25% of all trips made by Toronto residents and individuals commuting to / from the city, making it the backbone of the city and region's transportation system.

TTC ridership has increased 25% since 1996. Contributing factors include population growth, increased employment and economic activity in the GTA and Toronto, the implementation of the TTC's *Ridership Growth Strategy* (RGS), various fare and service initiatives, extensions of the Harbourfront streetcar and Spadina Subway, and the opening of the Sheppard Subway and Spadina streetcar.

More generally, the success of the TTC is largely attributable to two factors. The first factor is Toronto's relatively compact urban form coupled with nodes of high density residential development; the second is the availability and quality of transit service provided by the TTC itself.

By North American standards, Toronto's population density is high and its urban form is relatively compact, particularly in the older areas of the city. These characteristics serve to support robust transit ridership levels. The attractiveness of transit is also boosted by the limited supply and high price of parking in the downtown core. Of equal importance, though, are the many high density residential nodes and employment areas outside the city's core. A large number of these areas are nearby subway stations or major arterial roads served by surface transit. In short, a strong (though by no means perfect) legacy of intelligent, transit-friendly urban planning and land use decisions are a key ingredient

of the TTC's success and, in turn, Toronto's liveability, attractiveness and sustainability as a major urban centre.

The TTC's success is also underpinned by the favourable quality, range, and frequency of service it offers through its integrated network of buses, streetcars and subway lines, and their connectivity with GO Transit and the local transit services of surrounding municipalities. High service standards help the TTC keep existing customers and attract new ones, thereby growing ridership levels and boosting the system's efficiency.

Toronto's transit system is one of the city and region's most important public assets. The TTC carries about 90% of all transit riders in the GTA, and approximately 15% of its passengers are residents of surrounding municipalities.

Investing in Public Transit

The TTC is one of the most efficient transit systems in the world. Overall cost recovery ratios (revenue/cost) exceed 70%. Compared with transit operators elsewhere, the TTC achieves favourable and competitive scores across a range of indicators, including:

- ridership/capita
- modal split
- subsidy/rider
- operator productivity
- scheduling efficiency
- maintenance spares ratios, and
- vehicle loading standards

Yet as with most other public transit operators with a broad coverage mandate, the TTC requires on-going subsidy and support from government to maintain and expand its operations.

In 2008, the TTC's operating revenue from passenger fares, advertising and other income was approximately $872 million. This revenue offset almost 73% of the TTC's $1.2 billion in operating costs. To fill the remaining gap, the TTC received substantial operating subsidies from the City of Toronto ($131 million) and Province of Ontario ($172 million).

The TTC operates approximately 2,700 transit vehicles across the city, and it manages assets that are worth over $10 billion. The City of Toronto and the TTC have made deliberate decisions to ensure that the maintenance and rehabilitation of the existing transit network have priority over expanding the system. Routine maintenance costs are factored into the TTC's operating budget, while so-called "State of Good Repair" (SOGR) costs associated with the rehabilitation and replacement of essential infrastructure and vehicles are part of the TTC's capital budget.

To maintain the existing network, the TTC earmarks the majority of its capital budget, 84% in 2008, to State-of-Good-Repair (SOGR) initiatives including:

- purchases of new vehicles to replace its aging fleet of buses, subway trains, and streetcars (LRV)
- the rehabilitation of buildings, structures, tunnels and bridges,
- the maintenance and repair of trackwork, signals, electrical and communications equipment,
- vehicle overhauls, and
- IT projects.

Maintaining existing assets in a state of good repair is essential if the TTC is to offer convenient, reliable and timely service, retain and grow its ridership base, and offer a credible alternative to driving.

The TTC's annual ridership level has grown from 372 million in 1996 to a projected 473 million in 2009. This represents an increase in ridership of almost 30% during a period when the city's population grew by less than 10% and the number of jobs in Toronto grew by 20%.

In the past 10 years alone, TTC ridership increased 20% and is now at its highest level ever. Despite broad national trends which have seen an increase in personal car ownership and use, within Toronto the proportion of all trips made by modes of transportation other than the car has increased from 32% to 34% since 2001.

Providing adequate service levels when demand and ridership are growing requires on-going, sustainable investment in transit infrastructure. A key priority for this investment in recent years has been to replace the TTC's aging vehicle fleet. As detailed below, the one-time contribution received from the PTF and on-going contributions received from the GTF have been critically important to this effort.

To ensure future ridership growth and support the type of urban form and development called for in the City of Toronto's *Official Plan* and the Province of Ontario's *Growth Plan for the Greater Golden Horseshoe*, the TTC has developed a series of long-term investment plans and service expansion initiatives, including:

- *Ridership Growth Strategy* (RGS) – A comprehensive, staged approach to increase transit ridership through cost-effective improvements to service, changes to fare policy and new facility construction. Approved in 2003, implementation of the RGS is well underway.

- *Transit City Light Rail Plan* - An interconnected 120 km network of fast, frequent and reliable light rail transit (LRT) lines stretching to all corners of Toronto and ultimately into adjacent municipalities. Approved in 2007, environmental assessments and design work for these new transit lines are well underway.

- Refurbishment and extension of the Scarborough RT to Malvern.

- Various subway renewal and expansion investments, such as the:
    - Purchase of new, larger subway cars and the installation of state-of-the-art signalling and automatic train control, which will greatly improve the capacity of the Yonge-University-Spadina subway.
    - Extending the Spadina and Yonge subways into York Region
    - Building a second platform at Union Station to address overcrowding and improve boarding capacity

Funding for the TTC's SOGR initiatives and other capital budget investments is provided by the City of Toronto, the Province of Ontario and the Government of Canada. The capital funding requirements of the TTC exert an enormous pressure on the City of Toronto's finances. In 2008, for example, $753.471 million -- or 47% -- of the City's $1.610 billion capital budget was dedicated to the TTC. The City's support for the TTC's 2008 capital budget was made possible, in part, by an $81 million contribution from the GTF.

Major transit infrastructure investments, such as those entailed by SOGR or the expansion plans specified above, pay dividends to the public over many decades and even generations. Fleet investment cycles, for example, must account for the fact that a typical transit vehicle has an 18 – 30 year lifespan.

The continued success of the TTC therefore requires long-term, predictable and dedicated funding sources with direct application to public transit. This is precisely the kind of funding made available to Toronto and other municipalities across Canada through the Federal Gas Tax Fund.

Toronto / TTC Federal Gas Tax Fund Expenditures, 2005 – 2008

This chart details the investments made by the City of Toronto/TTC using the contributions it received from the Federal Gas Tax Fund between 2005 – 2008.

Year	Project	Total Expenditure		GTF Contribution		Other Federal Funding	Vehicle Type	Milestones Dates: (Delivery/Start/ Completion)
		Amount ($M)	# of Vehicles	Amount ($M)	# of Vehicles			
2005	Replacement buses and normal growth	$137.2	250	$48.9	141		Orion VII low floor 12 metre diesel buses	Jan 1 - Dec 31, 2005
			2005 Total	**48.9**				
2006	Replacement buses and normal growth	$148.9	80	$25.1	53		Orion VII low floor 12 metre diesel buses	Jan 1 - Dec 31, 2006
	Subway cars – replacement and normal growth*	$105.5	234	$23.8	156	CSIF: 78 of 234	Bombardier New Toronto Rocket 6-car train sets	Contract awarded Dec 2006; deliveries 2009-2011
			2006 Total	**$48.9**				
2007	Additional Buses for Ridership Growth Strategy	$49.0	100	$32.4	67		Orion VII low floor 12 metre diesel buses	Jan 1 – Dec 31, 2007 deliveries
	Subway cars – replacement and normal growth*	$89.1	234	$32.7	156	CSIF: 78 of 234	Bombardier New Toronto Rocket 6-car train sets	Contract awarded Dec 2006; deliveries 2009-2011
			2007 Total	**$65.1**				
2008	Replacement buses and normal growth	$253.8	190	$47.3	106	CSIF: 84 of 190	Orion VII low floor 12 metre diesel/ electric hybrid buses	
	Subway cars – replacement and normal growth*	$77.4	234	$34.2	156	CSIF: 78 of 234	Bombardier New Toronto Rocket 6-car train sets	Contract awarded Dec 2006; deliveries 2009-2011
			2008 Total	**$81.5**				

Toronto / TTC Federal Public Transit Fund Expenditures, 2005 - 2006

This chart illustrates the investments made by the City of Toronto/TTC using the contributions it received from the Federal Public Transit Fund in 2005 -2006.

Year	Project*	Total Expenditure		PTF Contribution		Other Federal Contributions
2005	**Vehicles**	**Amount ($M)**	**# of Vehicles**	**Amount ($M)**	**# of Vehicles**	
	Bus Heavy Rebuild Program	$20.2	101	$13.4	101	
	Subway Car Overhaul Program	$13.3	104	$12.0	104	
	Replace 12 metre Diesel Buses	$136.3	250	$37.7	109	GTF: 141
			Sub total	**$63.1**		
	Infrastructure*	**Amount ($M)**		**Amount ($M)**		
	Power Distribution Electric System Projects	$6.4		$5.7		
	Communications Projects	$5.6		$5.0		
	Subway Signal System Alterations Projects	$5.1		$3.8		
	Finishes	$2.7		$2.4		
	Roof Rehabilitation Program	$1.3		$1.1		
	Facilities Equipment Program	$0.6		$0.6		
	Structural Paving Program	$2.7		$2.4		
	Bridges & Tunnels Program	$7.1		$6.4		
	Birchmount Garage Bus Bay Modifications	$1.1		$1.0		
	Transit Control Centre	$2.3		$1.5		
	Buildings & Structures Program	$3.7		$3.4		
	New Maintenance Facility Wilson/ Davisville	$1.5		$1.3		
	Eglinton Bus Terminal Replacement	$0.3		$0.3		
	Other Service Planning	$0.7		$0.5		
			Sub total	**$35.4**		
			2005 Total	**$98.5**		

SECTION FOUR

Outcomes Achieved by Federal Gas Tax Fund and Public Transit Fund Contributions to Toronto between 2005 - 2008

Transit ridership is a function of many factors. Economic activity, population, urban form features including density and pedestrian orientation, parking supply and pricing, and the frequency, reliability and general quality of transit service all have an impact on transit ridership levels.

Because so many different variables impact transit ridership levels, it is difficult to draw a direct one-to-one relationship between investments in select components of a large-scale transit system and changes in ridership levels.

Taking the next step to then determine the quantity of emissions reduced by a given change in ridership is equally challenging, as exact figures will depend on a range of inter-dependent factors including:

- the average number of automobile trips reduced per new transit rider
- the average emission level / automobile trip (not taken), which is itself a function of various factors, such as the average distance of the vehicle trip (not taken), the age and condition of automobiles, and road, weather and traffic conditions
- the fleet mix (buses, streetcars, subways) fielded by the transit operator, any changes in these ratios induced by the new investment, and the average emission-rates for each type of vehicle in the fleet mix

These caveats notwithstanding, the investments made by the City of Toronto / TTC in transit infrastructure with GTF and PTF contributions have resulted in tangible outputs (mostly new buses and subway cars) that allow the TTC to transport millions of passengers who otherwise would travel by car.

Specifically, the TTC estimates that the vehicles (subway cars and buses) purchased or rebuilt with GTF and PTF funds[2] accommodate 190 million riders / year. Factoring in average auto occupancy rates, Toronto's GTF and PTF investments eliminate an estimated 160 million car trips in the city / year, yielding a proportionate reduction in CO2 and smog causing pollutants. On average a passenger trip on the TTC is twice as fuel efficient and produces less than half the emissions of an equivalent car trip.

While the exact numbers can be difficult to model and pin down, the cumulative result is obvious and compelling. Because GTF and PTF contributions to Toronto are invested entirely in maintaining and building public transit infrastructure, Toronto's air is cleaner and substantially fewer GHG emissions have occurred – or will occur – than would otherwise be the case in the absence of such investments.

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[2] In some instances, as noted in Section Three, these vehicles were financed with Federal *Canada Strategic Infrastructure Fund* contributions in addition to GTF and PTF contributions.

The balance of this section provides further information on:

- indicators which suggest how Toronto's GTF and PTF investments have improved the ridership levels, capacity and reliability of the city's public transit network, and

- other tangible and intangible outcomes of Toronto's GTF and PTF investments

Key Indicators

As noted above, GTF and PTF contributions to Toronto have been overwhelmingly used to rebuild old vehicles (i.e. maintain them in a state-of-good-repair) and finance the purchase of new buses and subway cars. These investments have helped the TTC to not only maintain existing service levels, but to gradually increase the fleet size so as to improve service quality and serve a greater number of passengers.

The TTC has calculated that the new and rebuilt vehicles in question accommodate approximately 190 million riders per year.

TTC Ridership

Year	Annual System Ridership (million)	% Change from 2005	% Change from previous year
2005	431		
2006	445	3.25%	3.25%
2007	460	6.73%	3.37%
2008	467	8.35%	1.52%

TTC System Capacity

Year	Revenue Vehicle Hours (million)	% Change from 2005	% Change from Previous Year
2005	7.1		
2006	7.3	2.82%	2.82%
2007	7.4	4.23%	1.37%
2008	7.7	8.45%	4.05%

Size and Age of TTC Bus Fleet

The average age of a transit fleet impacts on the reliability of the service that can be provided by a transit operator.

With funds received through GTF and PTF contributions, the TTC has been able to move ahead with its capital plan to replace aging buses (many of which were more than 15 years old) with state-of-the-art, fully accessible vehicles that generate fewer emissions and offer important customer services amenities, such as air conditioning, that help to attract and retain riders.

	Bus Fleet # of Vehicles	% Change in Size of Fleet from 2005	Average Age of Bus Fleet (years)	# of Buses More Than 15 Years Old
2005	**1495**		**10.8**	**569**
2006	**1598**	**6.89%**	**8.9**	**492**
2007	**1724**	**15.32%**	**8.4**	**439**
2008	**1752**	**17.19%**	**6.0**	**207**

Tangible and Intangible Outcomes of GTF and PTF Investments in the TTC

The following facts, figures and observations help to further illustrate the outcomes of GTF and PTF investments in public transit infrastructure operated by the TTC.

Detailed calculations by the TTC estimate that:

- On average, a passenger trip on the TTC is twice as fuel efficient and produces less than half the emissions of an equivalent car trip.

- During the morning rush hour, one TTC subway train removes approximately 900 cars from the street, while one bus removes approximately 45 cars from the street.

- The vehicles (260 subway cars and 577 buses) purchased or rebuilt with 2005 – 2008 GTF and PTF contributions accommodate 190 million riders / year. Factoring in average auto occupancy rates, Toronto's GTF and PTF investments eliminate an estimated 160 million car trips in the city / year, yielding a proportionate reduction in CO2 emissions and smog causing pollutants.

- Each year, the average TTC bus carries 181,125 riders, eliminates 112,125 car trips, and effectively prevents 505 tonnes of CO2 from being emitted.

- Each year, the average TTC subway car carries 428,322 riders, eliminates 248,771 car trips, and effectively prevents 1,439 tonnes of CO2 from being emitted.

The environmental benefits of transit investment are not limited to the replacement of inefficient, more highly polluting automobile trips with more efficient, less polluting transit trips. A reliable transit network with broad coverage allows for the development of denser, more environmentally sustainable communities. For example, for transportation alone, emissions from the type of compact, transit based community planned for Toronto's eastern Waterfront are expected to be 53% less than of those of a typical Toronto neighbourhood and 73% less than those of a suburban satellite community.[3] Compact neighbourhoods generate a host of additional environmental benefits and economic efficiencies, whether due to reduced home heating requirements and costs, or lower average per unit municipal servicing costs.

Other well-document benefits of transit in large urban centres include:

- providing increased mobility for people so that they can take advantage of employment, educational, recreational, and other opportunities cities offer

- improving air quality and, in doing so, improving people's health and their ability to enjoy outdoor spaces and activities, and reducing health care costs, and

[3] Source: Waterfront Scan & Envrionment Improvement Strategy Study, 2003
http://www.toronto.ca/waterfront/pdf/waterfront_environmental_scan.pdf

- freeing up road space for goods movement and reducing the wear-and-tear on city roads and the need to spend tax dollars on repairing and expanding road infrastructure

For more information about the Gas Tax Fund and the City of Toronto's participation in this important national program, please visit: www.toronto.ca/gastaxworks