



STAFF REPORT ACTION REQUIRED

Green Fleet Plan for TTC, Police, Fire and EMS

Date:	September 22, 2008
To:	Executive Committee
From:	Chief Corporate Officer
Wards:	All
Reference Number:	P:\2008\Internal Services\Fleet\Ec08003Fleet - (AFS 7458)

SUMMARY

As directed by City Council, the Toronto Transit Commission (TTC), Toronto Police Service (TPS), Toronto Fire Services (TFS) and Toronto Emergency Medical Services (EMS), with guidance from Toronto's Fleet Services Division, have prepared the "Green Fleet Plan for TTC, Police, Fire and EMS 2008-2011" to conserve fuel and reduce emissions of greenhouse gases and smog-causing pollutants. The plan is presented in Attachment 1 for Council's consideration.

This plan outlines the actions that each of the four organizations will take to green their vehicles, fuels and related activities. The plan will complement the City's existing Green Fleet Plan 2008-2011 for the City's core fleet of vehicles, those managed by Fleet Services Division and used by the City's Divisions.

For each of TTC, Police, Fire and EMS this plan presents a list of planned green fleet actions for 2008-2011. It describes their current vehicle inventory and existing green fleet activities. The plan also includes estimates of the financial impacts and greenhouse gas emission-reductions that are expected to result from the planned green fleet actions.

The four organizations estimate that the actions contained in the plan will reduce greenhouse gas emissions by more than 21,000 tonnes of eCO₂ in 2008-2011. TTC, Police, Fire and EMS estimate that on the whole the green fleet initiatives outlined in this plan will have a total estimated capital cost of approximately \$129.4 million over 2008-2011 and an operating impact reflecting fuel cost savings of approximately \$16.9 million during this period plus further savings in future years over the life of these assets. It must be noted that the most significant cost is related to the TTC hybrid buses which have committed Federal and Provincial partnership funding.

RECOMMENDATIONS

The Chief Corporate Officer recommends that:

1. City Council adopt the 2008-2011 Green Fleet Plans for Toronto Transit Commission, Toronto Police Service, Toronto Fire Services and Emergency Medical Services, in accordance with Attachment 1.

Implementation Points

The green fleet plan actions will be implemented by TTC, Police, Fire and EMS for their respective fleets. A comprehensive green fleet plan for the City Divisions' vehicles and fuels, the Green Fleet Plan 2008-2011, was adopted by Council in March 2008 and is being implemented, led by Fleet Services.

Financial Impact

There is no incremental cost impact on the 2008 Budgets for TTC, Police, Fire and EMS. The financial implications identified, and consolidated in the table below reflect the total estimated costs resulting from the price differential between a conventional vehicle and a "green" vehicle which often commands a premium or higher price. TTC, Police, Fire and EMS will include any potential incremental costs impact in future year capital budget submissions subject to corporate affordability targets. Any resultant savings in fuel costs will be reflected in their respective operating budgets.

TTC, Police, Fire and EMS estimate that on the whole the green fleet initiatives outlined in this plan will have a total estimated capital cost of approximately \$129.4 million over 2008-2011 and an operating impact reflecting fuel cost savings of approximately \$16.9 million during this period plus further savings in future years over the life of these assets. It must be noted that the most significant cost is related to the TTC hybrid buses which have committed Federal and Provincial partnership funding.

Toronto Transit Commission

The TTC projects that the implementation of the 2008-2011 green fleet activities (hybrid City buses only) for its fleet will result in a capital cost of \$128.8 million and an operating cost savings of \$16.6 million over these four years, summarized as follows:

Toronto Transit Commission financial impacts (for Hybrid Buses only):

	Capital Cost Premium for Hybrid Buses (\$ 200k/bus) (\$ millions)	Operating Fuel Savings Directly Attributable to use of Hybrid Buses in lieu of Conventional Buses (\$ millions)
2008	70.800	(1.601)
2009	26.000	(3.596)
2010	24.000	(5.290)
2011	8.000	(6.148)
Total	128.800	(16.635)

(i) Fuel savings reflect actual 2008 price per litre of diesel fuel paid by TTC. All other years are based on an estimated price per litre of diesel fuel.

(ii) Costs and quantities exclude pre-2008 hybrid purchases. Fuel savings figures are cumulative and include fuel saved by Hybrid Buses purchased in the 2008-2011 period and earlier but exclude future year savings over the remainder of the 18-year life of the buses.

(iii) Fuel figures not adjusted for ridership growth.

Toronto Police Service

The Toronto Police Service projects that the implementation of the 2008-2011 green fleet activities for its fleet will result in a net cost savings of approximately \$0.009 million over four years, summarized as follows:

Toronto Police Service financial impacts:

	Capital Cost (\$ million)	Operating Cost (\$ million)	Total Cost (\$ million)
2008	0.024	(0.003)	0.021
2009	0	(0.009)	(0.009)
2010	0	(0.010)	(0.010)
2011	0	(0.011)	(0.011)
Total	0.024	(0.033)	(0.009)

- The capital cost reflects the premium for hybrid vehicles after rebates. This amount in 2008 has been absorbed within the Service's approved amount for vehicle purchases and therefore did not result in a budget impact. The Service's vehicle purchases are funded from the Police Vehicle & Equipment Reserve. The Service has not determined to what extent hybrid vehicles will be used, and at this time no additional amounts have been reflected for future years capital costs.

- The operating cost reflects only fuel impacts and does not include maintenance and repair costs and residual values relative to conventional vehicles.

Toronto Fire Services

Toronto Fire Services projects that the implementation of the 2008-2011 green fleet activities for its fleet will result in a net cost of approximately \$0.1 million over four years, summarized as follows:

Toronto Fire Services financial impacts:

	Capital Cost (\$ million)	Operating Cost (\$ million)	Total Cost (\$ million)
2008	0.150	(0.033)	0.117
2009	0.090	(0.030)	0.060
2010	0	(0.031)	(0.031)
2011	0.035	(0.036)	(0.001)
Total	0.275	(0.130)	0.145

- Capital cost impact of \$275,000 represents the differential in purchase costs for fuel efficient vehicles, 42 light vehicles and 24 Fire Apparatus/Support vehicles.
- Operating cost savings for fuel of (\$78,437) are attributable to the fuel efficiency of new vehicles.
- The balance of fuel cost savings over four years of (\$51,280) relates to the annual reduction of 17,700 kilometres for training related travel.
- The change in capital purchases will not result in any additional impact on the capital and operating budgets, since the annual contribution to the Fire Fleet Replacement Reserve (made through the operating budget), which funds the purchases in capital, is a fixed amount and therefore, the number of vehicles purchased is limited to the amount that can be funded from that annual contribution.
- The favourable impact on future operating budgets as a result of fuel savings will be subject to the impact of rising fuel prices and the increase in mileage due to planned mandatory training courses.

Fire Services will continue to seek fuel-efficient, appropriately sized apparatus whether of European or North American design and manufacture.

Emergency Medical Services

Emergency Medical Services projects that the implementation of the 2008-2011 green fleet activities for its fleet will result in a net cost of approximately \$0.3 million over four years when fuel cost savings, rebates and contributions to reserve are accounted for:

Emergency Medical Services financial implication of planned green fleet initiatives:

	Capital Cost (\$ million)	Operating Cost (\$ million)	Total Cost (\$ million)
2008	\$0.024	\$0.000	\$0.024
2009	\$0.098	(\$0.004)	\$0.094
2010	\$0.098	(\$0.016)	\$0.082
2011	\$0.098	(\$0.032)	\$0.066
Total	\$0.318	(\$0.052)	\$0.266

(i) Premium cost over regular vehicles: Hybrid Sedan \$6.0k; Hybrid SUV \$10.0k, net of rebates of \$2.0k Provincial and \$2.0k Federal in 2008, \$2.0k Provincial-only in 2009, 2010 and 2011 unknown.

(ii) Gasoline prices estimated at \$1.35/L in 2008-09, \$1.45/L in 2010 and \$1.60/L in 2011.

Consolidated Financial Implications:

Total financial impacts for TTC, Police, Fire and EMS 2008-2011:

	Capital Cost (\$ million)	Operating Cost (\$ million)
TTC	128.800	(16.635)
Police	0.024	(0.033)
Fire	0.275	(0.130)
EMS	0.318	(0.052)
Total	129.417	(16.850)

(i) TTC costs are for hybrid City buses only.

(ii) EMS Operating Cost and Total Cost include \$39,900 contribution to EMS Vehicle Reserve.

(iii) Operating savings attributable to these assets will also be realized in future years.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

In July 2007 Toronto City Council adopted the Climate Change, Clean Air and Sustainable Energy Action Plan (report EX 10.3):

<http://www.toronto.ca/legdocs/mmis/2007/ex/reports/2007-06-25-ex10-cr.pdf>

It directed City Agencies, Boards and Commissions with large fleets to prepare a "consolidated green fleet plan" for their fleets and include idle-reduction measures.

Recommendation 9f from this report says City Council will: "direct the Executive Fleet

Steering Committee to develop by mid-2008 a consolidated Green Fleet Plan for the TTC, Emergency Medical Services, Toronto Fire, Toronto Police and other Agencies, Boards, and Commissions for fleets not included in the Phase I Green Fleet Transition Plan and include in that plan actions to eliminate unnecessary idling of City vehicles through the City's Anti-Idling Campaign". This report responds to that request.

ISSUE BACKGROUND

The City of Toronto is committed to conserving fuel and reducing emissions of greenhouse gases and smog pollutants. TTC, Police, Fire and EMS operate large fleets of vehicles as part of their daily operations. This presents opportunities to green these fleets and reduce fuel costs and emissions.

In addition to this plan for TTC, Police, Fire and EMS, the Fleet Services Division is implementing Toronto's Green Fleet Plan 2008-2011 for the vehicles and fuels used by the City's Divisions: http://www.toronto.ca/fleet/gfp_08_11.htm

COMMENTS

In Toronto, vehicles are important sources of greenhouse gases (known as eCO₂) that cause climate change and smog pollutants that can directly impact health. As directed by City Council, the Toronto Transit Commission (TTC), Toronto Police Service (TPS), Toronto Fire Services (TFS) and Toronto Emergency Medical Services (EMS) have prepared this plan to conserve fuel and reduce emissions of greenhouse gases and smog-causing pollutants. In this plan, each of the four organizations outline the actions they will take to green their vehicles, fuels and related activities. Planned green fleet activities include:

TTC

- Continue service levels for existing ridership base of 460 million plus address growth and expansion;
- Purchase 354 hybrid buses in 2008, 130 in 2009, 120 in 2010 and 40 in 2011;
- Purchase 6 subway cars in 2009, 120 in 2010 and 108 in 2011;
- Purchase 8 hybrid cars in 2008;
- Increased capacity on new electrically powered rail vehicles and through resignalling of Yonge-University-Spadina subway line allows improved reliability and ridership growth and provides ability to get more people out of their cars and onto transit, also facilitates expansion initiatives; and
- Reduce total amount of fuel through the 10% fuel saved by Hybrid City Buses;

Police

- Purchase 8 hybrid cars in 2008; and
- Identify and incorporate devices, equipment and practices that reduce fuel consumption, pollutant emissions and idling by vehicles;

Fire

- Provide on-line training where possible to reduce travel, travel during non-peak hours, and use fuel-efficient vehicles for fire-prevention activities;

- Purchase 5 hybrid “light” SUV’s in 2008, and 5 in 2011;
- Purchase 8 ultra-low emission cars in 2008, 8 in 2009, 8 in 2010, and 8 in 2011;
- Test smaller, fuel-efficient diesel vans to replace larger vans, 11 in total; and
- Work with Fleet Services Division to identify and pilot test promising green vehicles and work with industry to accelerate development and large-scale adoption;
- Since 2006 Toronto Fire has used nine hybrid SUVs to replace nine large sedans. This has saved 53.5 tonnes of eCO₂ and 1.9 tonnes of combined Criteria Air Contaminants (NO_x, SO_x, CO, VOC and PM₁₀) annually compared to continued use of large sedans.

EMS

- Investigate the feasibility of purchasing 4 hybrid sedans in 2008, 3 in 2009, 3 in 2010 and 3 in 2011;
- Investigate the feasibility of purchasing 8 hybrid SUVs in 2009, 8 in 2010 and 8 in 2011;
- Identify and incorporate initiatives to reduce idling such as space heaters where operationally feasible;
- Work with the Province of Ontario, Toronto Fleet Services Division and industry to identify and pilot test hybrid, electric, hydrogen/fuel cell and fuel-conserving ambulances and equipment; and
- Utilize fuels from sustainable sources as they become available e.g. ethanol from cellulose.

The four organizations estimate that the actions contained in this plan will result in greenhouse gas emission reductions in 2008-2011 of over 21,000 tonnes of eCO₂.

Summary of forecast greenhouse gas emission reductions (tonnes eCO₂)

	2008	2009	2010	2011	Total
TTC	1,731	2,374	3,165	3,461	10,731
Police	2,287	2,287	2,287	2,287	9,146
Fire	139	144	151	162	596
EMS	264	287	306	325	1,182
Total	4,421	5,092	5,909	6,235	21,655

- These emission reductions are underestimates as there are initiatives for which emission reductions could not be estimated at this time.
- TTC emission reductions are for hybrid City buses only.
- Forecast emission-reductions for the Police are based on initiatives introduced in 2003-2007 as well as those in 2008-2011.

As indicated in the existing Green Fleet Plan 2008-2011 for the City’s core Divisions, the City will continue to pursue external funding opportunities to enable the City and its

agencies, boards and commissions to enhance greening of their fleets. The City will also continue to actively encourage other orders of government to support policies and incentives that encourage the use of sustainable vehicles, fuels and practices.

This report presents a first green fleet plan for TTC, Police, Fire and EMS. It will help these four organizations reduce emissions of greenhouse gases and smog pollutants and lower fuel costs. It includes a range of initiatives such as replacing conventional vehicles with hybrids and fuel-efficient vehicles and right-sizing the fleet. More importantly, it lays out a path ahead for the four organizations to explore the many opportunities that are now available. This plan, along with Toronto's Green Fleet Plan 2008-2011 for the City's Divisions, will help Toronto achieve its air quality improvement and climate-protection goals and remain a Canadian leader in greening the fleet.

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SIGNATURE

Bruce Bowes, P. Eng.
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ATTACHMENT

Attachment 1. Green Fleet Plan for TTC, Police, Fire and EMS 2008-2011