



STAFF REPORT ACTION REQUIRED

Green Fleet Plan 2008-2011

Date:	January 31, 2008
To:	Government Management Committee
From:	Bruce Bowes, Chief Corporate Officer
Wards:	All wards
Reference Number:	P:\2008\Internal Services\Fleet\Gm08001Fleet - (AFS 5469)

SUMMARY

The City of Toronto is introducing Phase II of its green fleet planning process, the Green Fleet Plan 2008-2011, as directed by Council. Toronto is greening its vehicle fleet operations to reduce fuel use, fuel costs and emissions of greenhouse gases and smog-causing pollutants, and reduce the fleet's environmental impact.

The Green Fleet Plan 2008-2011 presents a list of actions that the City will undertake over the next four years, led by the Fleet Services Division. These actions form the recommendations of this staff report. The actions cover five topic areas: Emission-reduction targets, Vehicles, Fuels, Sustainable choices and Maintenance and management practices. By implementing the plan, in 2008-2011 the City of Toronto is expected to reduce carbon dioxide emissions from the City's central vehicle fleet by approximately 15 million kilograms (15,000 tonnes, or 11 percent), compared to the emissions from conventional vehicles, fuels and activities. With the proposed implementation of the Toronto Green Fleet Plan 2008-2011, the cost savings are estimated to be \$2.032 million over four years.

RECOMMENDATIONS

The Chief Corporate Officer recommends that:

Re: Emission reduction targets

1. Fleet Services Division ensure its fleet operations meet or surpass the emission reduction targets adopted by Council:

- a. reduction targets for greenhouse gas emissions from the 1990 levels of 6% by 2012 (the “Kyoto target”); 30% by 2020; and 80% by 2050; and
- b. a 20% reduction target for locally generated smog causing pollutants from 2004 levels by 2012;

Re: Vehicles

- 2. Fleet Services Division contain fleet size and purchase fuel-efficient, right-sized vehicles as a standard practice across all Divisions, if they are commercially available and meet operational needs, specifically:
 - a. Contain the size of the City’s fleet by working with Divisions to reduce the number of vehicles required and kilometres travelled, use vehicles more efficiently and delete underused vehicles from the fleet or move them to other City operations;
 - b. Purchase the right size of vehicle for the job, using small vehicles where they meet operational needs; and
 - c. Purchase the most fuel-efficient vehicle, or lowest-emitting vehicle, that is commercially available and meets operational needs;
- 3. Fleet Services Division replace the following numbers of City vehicles with green vehicles, giving priority to the cleanest technologies: At a minimum, replace 80 vehicles in 2008, 100 vehicles in 2009, 140 vehicles in 2010 and 200 vehicles in 2011;
- 4. Fleet Services Division pilot test promising green vehicle technologies and work with industry to accelerate development and large-scale adoption in Canada by:
 - a. Actively seeking, pilot testing and incorporating green vehicles and technologies into the City’s fleet;
 - b. Pilot testing more plug-in electric vehicles and ensuring that they are re-charged at night using off-peak electricity where possible;
 - c. Working with Toronto Atmospheric Fund to expand the Toronto Plug-in Hybrid Electric Vehicle Project to a larger consortium of fleet managers, potentially to include GTA municipalities and utilities;
 - d. Pilot testing full-electric vehicles as well as recharging station technologies and options, in partnership with the Toronto Atmospheric Fund and the Toronto Parking Authority;

- e. Evaluating electric, low-speed vehicles for City of Toronto operations and pilot testing these vehicles if the evaluation indicates they will be beneficial;
 - f. Pilot testing green trucks, including light-duty, medium-duty and heavy-duty vehicles, targeting those that idle excessively such as delivery trucks and garbage packers, and sharing results with municipal and private fleet managers;
 - g. Developing, in collaboration with the Toronto Atmospheric Fund, a Low-Carbon Truck Pilot Project that pilot tests hybrid, plug-in hybrid, and all-electric truck technologies;
 - h. Pilot testing hydrogen-powered vehicles;
 - i. Adding hybrid-electric aerial tower trucks to the City's fleet;
 - j. Replacing all of the City's old street sweepers with "regenerative-air" dustless sweepers that trap fine particulate matter (PM_{2.5}) pollution and have cleaner diesel engines;
 - k. Adding electric, zero-emission ice resurfacers to the City's fleet; and
 - l. Continuing to review the merits and applicability of natural gas vehicles;
5. Fleet Services Division identify and incorporate equipment and practices that reduce fuel consumption, pollutant emissions and idling by the City's vehicles, such as:
- a. Procure LED lights, batteries, inverters, space heaters or other equipment that reduces the need to idle a vehicle for long periods in order to operate lights, arrow boards and other necessary tools; and
 - b. Install electric plugs for truck block heaters at all major Solid Waste yards where feasible, and develop a policy to ensure they are used by staff to reduce unnecessary vehicle idling;
6. Fleet Services Division replace the oldest vehicles with cleaner, modern technology by continuing to accelerate the replacement of overdue City vehicles;
7. Fleet Services Division include in all vehicle procurement specifications green vehicle attributes, such as fuel efficiency and low emissions, and provide an appropriate weighting for these attributes when selecting a product;

Re: Fuels

8. Fleet Services Division evaluate biofuels to determine which products and feedstocks provide the greatest environmental benefits on a life-cycle basis;
9. Fleet Services Division evaluate the use of biofuels with the federally mandated new diesel engines (2007 US EPA compliant models) and emission control devices to optimize emission reductions achieved by the City;
10. Fleet Services Division expand the biofuels program to deliver biofuels to all City Divisions;
11. Fleet Services Division explore the feasibility of using biodiesel in off-road diesel fuel, and implement a pilot project if feasible;
12. Fleet Services Division use clean sources of energy for vehicles, including biofuels from sustainable feedstocks as they become available, for example ethanol produced from cellulose;
13. Fleet Services Division advocate for sustainable electricity in Ontario, including conservation, renewables and the timely phase out of coal-fired electricity, to ensure the environmental benefits of plug-in and all-electric vehicles are realized;

Re: Sustainable choices

14. Fleet Services Division host the annual Green Fleet Expo with the City of Hamilton, Fleet Challenge and other partners to provide public and private fleet managers and members of the public with an opportunity to learn about green fleet technologies and practices;
15. Fleet Services Division encourage other municipalities and private companies to green their fleets, and share Toronto's experience by:
 - a. Participating in Fleet Challenge in 2008 by presenting Toronto's green fleet experience to other Ontario municipalities;
 - b. Sharing information with Greater Toronto Area municipal fleet managers through the GTA Clean Air Council;
 - c. Sharing information with public and private fleet managers through the Canadian Association of Municipal Fleet Managers (CAMFM), National Association of Fleet Administrators (NAFA Canada) and Municipal Equipment and Operations Association (MEOA); and

- d. Working with the Director of the Toronto Environment Office to create a Greening Commercial Fleets Enviro-Action Working Group consisting of representatives of the National Association of Fleet Administrators and operators of large fleets in the areas of phone, cable, utilities, retail and courier providers to work together to identify and implement actions that green these fleets and achieve a reduction in emissions city-wide;
16. Fleet Services Division provide technical support to the Toronto Transit Commission, Emergency Medical Services, Toronto Fire Services, Toronto Police Service and other Agencies, Boards and Commissions in developing and implementing their consolidated green fleet plans;
17. Fleet Services Division provide technical support to Municipal Licensing and Standards, Toronto Atmospheric Fund and other partners in their efforts to green the fleets of vehicles that are licensed by the City (e.g. taxis);
18. Fleet Services Division support the City's Bike Share program for staff by providing bike procurement assistance, safety training and maintenance for a pool of City bicycles;
19. Fleet Services Division provide information and assistance to support establishment of bicycle infrastructure at City facilities by Facilities and Real Estate, including bike parking, bike lockers and other ancillary facilities as appropriate;
20. Fleet Services Division promote the City's Idle-Free Policy and ten-second idling rule for City staff;
21. Fleet Services Division continue to provide Idle-Free training in staff driver training courses, to monitor staff compliance with the ten-second idling rule, and to follow up with staff found to be idling;
22. Fleet Services Division determine the feasibility of establishing a policy prohibiting City vehicles from drive-throughs, and establish the policy if feasible;
23. Fleet Services Division encourage other orders of government to support policies and incentives that encourage the use of sustainable vehicles, fuels and practices;
24. Fleet Services Division work with Divisions to explore the feasibility of making green pool vehicles available to staff who require their vehicle for work;
25. Fleet Services Division investigate and implement ways to reduce the number of work-related vehicle trips taken by Fleet Services staff, such as increasing the use of conference calls and scanners to share information between work sites;

26. Fleet Services Division work with other Divisions to encourage City of Toronto employees to make sustainable transportation choices on their commute and at home, including by providing information on green vehicles and commuting alternatives to City staff;
27. Fleet Services Division support the Smart Commute program by providing data and information and promoting the program as it is rolled out to all City employees;
28. Fleet Services Division provide information to the public on green vehicles and funding incentives on Fleet Services' website;
29. Fleet Services Division promote green vehicles at public events such as the Green Living Show, Canadian National Exhibition and Green Toronto Festival;

Re: Maintenance and management practices

30. Fleet Services Division investigate the feasibility and benefit of adopting additional green practices at Fleet maintenance facilities, such as using synthetic oils and extending the time between oil changes;
31. Fleet Services Division continue to reduce the number of fuel sites operated by the City of Toronto by consolidating, upgrading or closing fuel sites, in consultation with client Divisions;
32. Fleet Services Division have the City's fleet reviewed and rated under the E3 Fleet Rating System to identify opportunities to reduce fuel use and pollutant emissions and measure Toronto's fleet against available environmental benchmarks;
33. Fleet Services Division examine the practices used by international municipal green fleet leaders such as New York City and Los Angeles, and incorporate successful practices into Toronto's fleet operations where feasible;
34. Fleet Services Division undertake a study to confirm that the actions Fleet Services is taking will meet the emission reduction targets for greenhouse gases and smog pollutants;
35. Fleet Services Division request funding in 2009 and later years to provide an operating budget for emission reduction assessment studies and green fuel premiums;
36. Fleet Services Division seek funding opportunities to enable the City to accelerate greening of its fleet;

37. Fleet Services Division include green fleet practices in tenders for work done by private contractors, such as a requirement to use fuel-efficient vehicles for City business and to prevent idling, and consider this information in the selection process;
38. Fleet Services Division provide annual updates on progress achieved in meeting the commitments and targets of the Green Fleet Plan 2008-2011 on Fleet Services' website; and
39. This report be forwarded to Parks and Environment Committee for information.

Implementation Points

The recommendations will be implemented by Fleet Services Division in concert with its client Divisions and some Agencies, Boards and Commissions. The Green Fleet Plan 2008-2011 focuses on the City's central, 4,700-vehicle fleet managed by Fleet Services Division. Fleet Services is also assisting the TTC, Police, Fire and EMS in preparing their own green fleet plans, as directed by Council.

Financial Impact

The City can reduce its emissions by greening its vehicle fleet. This means using environmentally sustainable vehicles, fuels, and practices that reduce fuel consumption. Greening the fleet and reducing fuel use helps the City conserve financial resources and also meet its clean air and climate protection goals.

It is projected that the implementation of the Green Fleet Plan 2008-2011 will result in a net savings of \$2.032 million over four years, summarized as follows:

	Capital Cost ('000s)	Operating Cost* ('000s)	Total Cost ('000s)
2008	\$500	- \$917	- \$417
2009	\$500	- \$947	- \$447
2010	\$500	- \$1,027	- \$527
2011	\$500	- \$1,141	- \$641
Total	\$2,000	- \$4,032	- \$2,032

* Operating costs are net costs after fuel savings have been deducted.

The total capital cost over four years will be \$2.000 million. The Fleet Services 2008 Approved Capital Budget and 2009-2012 Capital Plan include an annual provision of \$0.500 million for green fleet initiatives. The Green Fleet Fund is to fund the incremental costs associated with new technologies such as hybrids, electric vehicles and other alternative vehicles.

There will be a net savings in operating costs of approximately \$4.032 million. Savings are expected from the reduction in fuel costs, offset by the additional cost of some alternative fuels such as ethanol.

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

DECISION HISTORY

At its meeting July 16, 17 and 18, 2007, Council adopted recommendation 9e of the Climate Change, Clean Air and Sustainable Energy Action Plan: Moving from Framework to Action (report EX10.3).

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

The recommendation directed staff to prepare this Phase II green fleet plan.

ISSUE BACKGROUND

In 2004, Council adopted the Green Fleet Transition Plan 2004-2007, outlining the environmentally sustainable vehicles and fuels the City would use over that time. Since then, that plan has been implemented and many new opportunities have become available. A new Green Fleet Plan is required for 2008 and beyond to ensure Toronto remains a leader in greening its fleet and continues to improve the environmental performance of its operations.

COMMENTS

The purpose of the Green Fleet Plan 2008-2011 is to reduce fuel use, fuel costs, and emissions of greenhouse gases and smog-causing pollutants, and lower the fleet's environmental impact. The Green Fleet Plan 2008-2011 sets out the actions that Toronto will take over the next four years to green the City's vehicles and fuels. The actions cover five topic areas: Emission-reduction targets, Vehicles, Fuels, Sustainable choices and Maintenance and management practices. The actions form the recommendations of this staff report.

There is a clear need to reduce pollution from vehicles in Toronto. Cars and trucks emit a variety of air pollutants that produce smog, contribute to climate change and cause health problems. The Medical Officer of Health reports that air pollution from traffic gives rise to approximately 440 premature deaths and 1,700 hospitalizations in Toronto each year. A recent City of Toronto inventory shows that one third of the greenhouse gas emitted in Toronto comes from the transportation sector.

The City can reduce its emissions by greening its vehicle fleet. This means using environmentally sustainable vehicles, fuels, and practices that reduce fuel consumption. Greening the fleet and reducing fuel use helps the City meet its clean air and climate protection goals and also conserve financial resources.

The Green Fleet Plan 2008-2011 is Phase II of the City's fleet greening efforts. Under Phase I, the Green Fleet Transition Plan 2004-2007, the City's centrally managed fleet reduced carbon dioxide (CO₂) emissions by an estimated 5,000,000 kg, or 5,000 tonnes, compared to conventional vehicles and fuels. This estimate is based on the total fuel usage each year, the quantity of alternative fuels, and the fuel savings from each green vehicle in each year.

Phase II, the Green Fleet Plan 2008-2011, includes many new and expanded green fleet initiatives. They will reduce fuel use and reduce emissions of greenhouse gases and smog pollutants. By implementing the Plan, over the next four years the City of Toronto is expected to reduce carbon dioxide emissions from the City's fleet operations by approximately 15 million kilograms (15,000 tonnes), compared to conventional vehicles, fuels and activities. This equals a CO₂ reduction of 11 per cent or more below the emissions that would result if Toronto didn't have a green fleet program.

	Forecast emission reductions from green vehicles		Forecast emission reductions from fuels		Total forecast emission reductions	
	(kg CO ₂)	%*	(kg CO ₂)	%	(kg CO ₂)	%
2008	160,000	29	3,120,000	9	3,280,000	9
2009	164,000	30	3,846,000	11	4,010,000	11
2010	172,000	32	3,834,000	11	4,006,000	11
2011	184,000	34	3,824,000	11	4,008,000	11
Total	681,000	31	14,624,000	10	15,304,000	11

Numbers may not add evenly due to rounding.

* Reductions from green vehicles are for 642 green vehicles (122 existing and 520 planned) compared to the 642 conventional vehicles they replace, not compared to all vehicles in the fleet.

Because of the large volumes of fuel purchased by the City each year, the majority of emission reductions are anticipated to result from fuel choices. Over the next four years, biodiesel, ethanol and natural gas are projected to lower the City's CO₂ emissions from fuel by approximately 14,600 tonnes or 10 per cent compared to conventional gasoline and diesel. Emission reductions from the current and future use of hydrogen, electricity and new, sustainable biofuels will provide additional reductions.

In the City's fleet green vehicles replace conventional vehicles when they are retired. Over 2008-2011 green cars and light trucks are anticipated to reduce CO₂ emissions by a minimum of 680 tonnes or 31 per cent compared to the conventional vehicles they replace. The City's most fuel-efficient vehicles reduce fuel consumption by half.

In addition to cars and light trucks, the Plan commits the City to a wide variety of other green vehicles and initiatives. At this time it is difficult to predict which specific technologies will be adopted on a large scale by Toronto so it is difficult to quantify the emission reductions that will result. These technologies and practices will therefore provide deeper emission cuts than the estimates presented here. Additional emission reductions will result from vehicles with idle-reduction technology such as idle-free space heaters, or idle-free power for tools and utility lighting. Further reductions will also be achieved using green medium- and heavy-duty trucks, which are a major focus of the Plan. Emission reductions from green purchasing policies, the Idle-Free campaign, bicycles, hybrid garbage packers, hybrid delivery trucks and diesel engines meeting new emission standards will all lower emissions below those predicted here. New technologies that become available over the next few years will also provide additional emission reductions.

This report commits Fleet Services Division to meeting the City's emission reduction targets (recommendation 1). These targets include reducing greenhouse gas emissions by six per cent below 1990 levels by 2012. Fleet Services will undertake a study to confirm that the actions Fleet Services is taking will meet the reduction targets for greenhouse gases and smog pollutants (recommendation 34). The study will assess progress achieved, estimate the City's 1990 greenhouse gas emissions and determine if the actions and their implementation are meeting the City's reduction targets. The City's green fleet actions and implementation will be adjusted if required to ensure that the emission-reduction targets are met.

Since 2004, the City of Toronto has been greening its vehicle fleet. The Green Fleet Plan 2008-2011 will accelerate these achievements over the next four years using proven approaches and new technologies as they become available.

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SIGNATURE

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ATTACHMENT

Attachment 1. Green Fleet Plan 2008-2011