TORONTO

STAFF REPORT
ACTION REQUIRED

Green Fleet Plan 2008 - 2011 – Annual Update (2008)

Date:	March 27, 2009
To:	Government Management Committee
From:	Chief Corporate Officer
Wards:	All
Reference Number:	P:\2009\Internal Services\Fleet\GM09002Fleet

SUMMARY

This report provides the first annual update on the Green Fleet Plan 2008-2011, adopted by Council in March 2008. As of December 2008, three of the measurable targets in the Green Fleet Plan have been achieved. Targets met include adding 117 green vehicles to the fleet exceeding the target of 80. Greenhouse gases (GHGs) were reduced by 3,340 tonnes in 2008 compared to the target of 3,280 tonnes. Forecasted out to 2011, the Green Fleet Plans will reduce GHGs by 20,392 tonnes and easily meet the Kyoto/City target of a 40,420 tonne baseline for 2012 based on a 6% reduction over 1990 levels. Lastly, implementing the Green Fleet Plan in 2008 resulted in savings of approximately $451,674 compared to the target of $417,000 due mainly to fuel cost savings from green vehicles and biodiesel. More information on each of the actions listed in the Green Fleet Plan as well as additional reporting requirements is included in Appendix A.

Fleet Services continues to promote the Idle Free program for staff. The four components to Idle Free are operator education, engine computer programming, idle shut down devices and other devices such as cab heaters.

In 2008, Fleet Services trialed two after-market devices that could be installed on existing vehicles to shut down based on prescribed idle time intervals and/or ambient temperature. One anti-idling device performed as expected and is being recommended for a larger trial of 40 units.

The successful Green Fleet Expo (GFX) name and logo is being recommended for adoption as official marks of the City of Toronto such that they can be trade-mark protected.

RECOMMENDATIONS

The Chief Corporate Officer recommends that:

1. Fleet Services expand the use of the idle shut-down device on 40 light-duty vehicles used by managers and supervisors in Parks Forestry and Recreation, Solid Waste Management Services, Transportation Services and Toronto Water to be funded from the Green Fleet Fund.

2. Fleet Services provide a report on the outcome of the expanded idle shut-down pilot as part of the next Green Fleet Plan Annual Update in 2010.

3. Fleet Services not proceed with the installation of a flashing light/buzzer approach to reduce idling.

4. Council approve the "Green Fleet Expo", "GFX" and associated logo as City of Toronto marks and that staff from Legal Services Division prepare an application to the Federal Registrar of Trade-Marks for registration of these marks.

5. Attached Appendix A: Status Summary for the Green Fleet Plan 2008 – 2011 be received for information.

Financial Impact

This report will have no financial impact beyond what has already been approved in the current year's budget.

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

DECISION HISTORY

The City's Green Fleet Plan 2008-2011 (GM12.6) was unanimously adopted by Council at its meeting on March 3 - 4, 2008.
http://www.toronto.ca/legdocs/mmis/2008/cc/decisions/2008-03-03-cc17-dd.pdf

As part of the adoption of the Green Fleet Plan, an interim report was requested to address:

1) Lifecycle impacts of hybrid-electric vehicles
2) Environmental implications of biofuels
3) Electric, low-speed vehicles, and
4) Pilot project to reduce idling

In response, the Green Fleet Plan Interim Update 1 (GM18.16) information staff report was submitted to Government Management Committee on October 21, 2008.

http://www.toronto.ca/legdocs/mmis/2008/gm/bgrd/backgroundfile-16106.pdf

The Green Fleet Plans for TTC, Police, Fire and EMS (EX24.2) was adopted by City Council at its meeting on October 29 – 30, 2008.
http://www.toronto.ca/legdocs/mmis/2008/cc/decisions/2008-10-29-cc25-dd.pdf

An additional motion (4) was added that, "Staff report to the Government Management Committee no later than February 2009 on the feasibility and cost of installing a flashing light and/or buzzer on all non emergency City and TTC vehicles that will activate when the vehicle has exceeded the revised idling by-law limits".

This staff report, Green Fleet Plan 2008 – 2011 Annual Update for 2008 also responds to motion 4 as it applies to City vehicles as well as other reporting requirements.

ISSUE BACKGROUND

Climate Change often referred to as global warming is caused by human activities that release greenhouse gases (GHGs) such as Carbon Dioxide (CO_2). The combustion of fossil fuels is responsible for much of the CO_2 and the creation of criteria air contaminants (CACs) leading to poor air quality and smog. The City of Toronto's Green Fleet Plan 2008 – 2011 and earlier, Green Fleet Transition Plan take direct aim at reducing CO_2 and CACs such as nitrogen oxides (NO_x), particulate matter (PM), volatile organic compounds (VOCs) and sulphur oxides (SO_x).

To date, Toronto's green fleet actions have reduced GHGs by an estimated 8,428 tonnes since 2004 demonstrating that fleets play an important role in reducing emissions from the transportation sector. Toronto's green fleet is seen as a leader in this regard and influenced the development of similar plans by the cities of Brampton, Hamilton, Markham and Mississauga. Fleet Services is currently providing information to the City of Ottawa for their first green fleet plan.

COMMENTS

The Green Fleet Plan 2008 – 2011 included 38 specific actions related to five areas: emission reduction targets, vehicles, fuels, sustainable choices and maintenance / management practices. An additional 9 actions were added as reporting requirements and have been included in Appendix A.

The following is a brief summary of notable actions underway and completed.

Emission Reduction Targets

Staff from Fleet Services and the Toronto Environment Office calculated a 1990 GHG baseline for Fleet Services of 43,000 tonnes based on available data and previous reporting. To year-end 2008, 8,428 tonnes of GHGs have been reduced since 2004 and

projected to 2011 the GHG reductions are forecast to be 20,392 tonnes. These reductions will exceed the 2012 Kyoto/City target baseline of 6% reduction over 1990 levels.

Staff continue to work on a 2004 baseline for CACs and are evaluating a number of emission factor estimation methods to use with Drive Clean emissions data. The 2010 annual report will include progress toward the 20% reduction target for CACs by 2012.

Vehicles

In 2008, 117 green vehicles were added to the inventory and surpassed the target of 80. At year end 2008, the green fleet inventory totalled 410 units. Cube vans installed with cab heaters are included in this inventory because they reduce idling by providing heat without running the main engine.

The hydrogen shuttle bus project with Ford of Canada has resumed after a lengthy delay due to the closure of two fuel sites. A temporary site has been set up in 2009 at the Finch yard for the duration of the project.

The hybrid plug-in pilot has concluded and a summary is being prepared by staff from the Toronto Atmospheric Fund (TAF). One of the recommendations provided by Fleet Services was that the findings from the pilot be shared with the major vehicle manufacturers developing plug-in hybrids on a commercial scale.

Two electric ice resurfacers went into service in 2008 and will be monitored for performance and reliability. The main advantage of these particular units is that that they produce zero emissions within a closed arena.

As of December 2008, all street sweepers have been replaced with $PM_{2.5}$ compliant units bringing the number to 65.

Fleet Services are monitoring the introduction of the USEPA 2010 truck engines that will continue to reduce PM and NO_x emissions over the USEPA 2007 engines. Most engine manufacturers will be using selective catalytic reduction (SCR) technology to achieve the 2010 emission standards. The SCR technology uses urea injection in the exhaust stream to reduce NO_x to harmless nitrogen.

In addition, Fleet Services is supporting Solid Waste Management Services in its feasibility study to determine the best use of landfill/biogas from Green Lane Landfill and the Green Bin program. If the landfill/biogas can be refined to pipeline-grade natural gas, it could be used to fuel natural gas garbage packers and other fleet vehicles.

Fuels

In 2008, the City used four clean fuels: natural gas, biodiesel, ethanol gasoline and cleaner off-road diesel.

The City is encouraging the development of next generation biofuels made from cellulose and other lower energy intensity feed stocks by leaving this requirement open in the 2009 bulk fuel tender. In addition, staff continue to use carbon content as a criteria for awarding the gasoline and diesel contract(s) and where possible will recommend the lower carbon fuel.

Sustainable Choices

The Green Fleet Expo (GFX) was conceived by Toronto staff in 2005. Now in its fourth year, the 2009 GFX will be hosted by the City of Hamilton with support from Toronto and Fleet Challenge Ontario. The GFX has continued to grow and is regarded as the premier Green Fleet exposition for fleet managers. As a result, Fleet Services is recommending that the Green Fleet Expo, GFX and associated logo (Appendix B) be adopted by Council as official marks for the City's authorized use, only. Once adopted by Council, the marks can be registered with the Federal Registrar of Trade-Marks at a cost of $500 each to be paid from Fleet Services 2009 operating budget.

Fleet Services continues to promote the Idle Free program for staff. The four components to Idle Free are operator education, engine computer programming, idle shut down devices and other devices such as cab heaters.

The engine computer programming (ECM) initiative has resulted in fuel cost savings for the City. Based on 152 garbage packers re-programmed to shut down after 3 minutes of idling, fuel savings were 52,000 litres for 4 months in 2008. Further savings can be expected in 2009 as more heavy-duty trucks have their ECMs re-programmed. To expedite this initiative, the ECMs for new trucks are being re-programmed prior to delivery as part of the vehicle specifications.

In 2008, Fleet Services trialed 2 after-market devices that could be installed on existing vehicles to shut down based on prescribed idle time intervals and/or ambient temperature. The first trial of 20 vehicles in the summer of 2008 did not produce the desired results. Idling data was inconsistent or missing and considered unreliable. The trial ended prematurely and the devices were returned to the vendor.

The second trial involving another anti-idling device performed as expected. Both idle timer and temperature feature were activated on 4 city vehicles and the device shut the vehicles off if idling exceeded 3 minutes or within the temperature parameters. Fuel savings were minimal due to the short duration of the trial but the device is an effective way to reduce emissions from vehicle idling. As a result, Fleet Services is recommending a larger trial for the second anti-idling device tested based on 10 installations for each of Fleet Services major clients: Transportation Services, Solid Waste Management Services, Toronto Water and Parks, Forestry and Recreation. The cost of the devices ($500 each installed) will be paid from the Green Fleet Fund at no cost to the individual clients and will begin in the second quarter of 2009. A report on the expanded trial will be provided as part of the Green Fleet Plan Annual Report in 2010.

Due to the various initiatives underway with the Idle Free program to reduce vehicle idling throughout the fleet, staff did not pursue the flashing light/buzzer approach other than obtaining informal quotes for such a device. The cost for a flashing light/buzzer connected to an idling timer is approximately $550 - $700 installed.

Maintenance and Management Practices

Fleet Services pursued 2 funding opportunities in 2008. The first application to the federal ecoFREIGHT program for a study of different garbage packer platforms (natural gas, hydraulic launch assist and pure biodiesel) was denied. The terms of the garbage packer trial did not meet the criteria for freight transport despite the resultant reductions to emissions.

An application to TAF for a Green Vehicle Evaluation and Selection Tool (GVEST) was approved for 2009 - 2011 in the amount of $250,000. The GVEST would assist fleets in evaluating various green fleet technologies. At the time of this writing, Fleet Services had signed the terms of the agreement and were preparing to launch the project with TAF.

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ATTACHMENTS

Appendix A: Status Summary for the Green Fleet Plan 2008 – 2011
Appendix B: GFX logo