



**STAFF REPORT  
ACTION REQUIRED**

**City of Toronto Consolidated Green Fleet Plan 2014-2018**

<b>Date:</b>	April 28, 2014
<b>To:</b>	Government Management Committee
<b>From:</b>	Director, Fleet Services Division
<b>Wards:</b>	All
<b>Reference Number:</b>	P:\2014\Internal Services\Fleet\GM14001Fleet - (AFS18878)

**SUMMARY**

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The City of Toronto Consolidated Green Fleet Plan 2014-2018 (Consolidated Plan) provides an overview of the City of Toronto’s objectives in addressing environmental impact with strategies that aim to reduce hazardous emissions from City's vehicle and equipment fleet operations.

We are pleased to announce that this plan is the product of cooperation between the five major City Fleets. Three of the five fleets working together under this Consolidated Plan are managed by City of Toronto Divisions: Fleet Services Division (Centrally Managed Fleet), Emergency Medical Services (EMS), and Toronto Fire Services (TFS). Two of the five fleets are managed by City Agencies: Toronto Police Service (TPS) and Toronto Transit Commission (TTC). The Consolidated Plan benefits from the assistance of the Environment and Energy Division (EED), and was reviewed and approved by each of the five City Fleets.

The Consolidated Plan presents objectives, strategies, and measures that balance operational needs, financial considerations, and Council's strategic goal of environmental sustainability. Our goal looking forward through to 2018 is to choose vehicles, equipment, fuels, and practices that consume less fuel and emit less greenhouse gas (GHG) and air pollution, meet the City Fleets' operational requirements, are sustainable, and are economically viable. This new Consolidated Plan sets realistic objectives that will measure our progress toward the established goal, and recommends specific measurable strategies on how we will accomplish these objectives. The Consolidate Plan will continue to reduce GHGs while not creating additional costs.

This report provides the outcomes of both the Green Fleet Plan 2008-2011 for the Centrally Managed Fleet, and the Green Fleet Plan for TTC, Police, Fire and EMS 2008-2011. It also addresses Council's direction June 11-13, 2013, in response to the Auditor General's recommendation, that the Director, Fleet Services Division conduct a review of the City's green fleet vehicles and report to Council on the progress on the City's Green Fleet Plan.

As part of the previous Plans, the five City Fleets have undertaken numerous pilot projects involving new and emerging green vehicle technologies. Some of these technologies have been successful and have been adopted by City Fleets. Other technologies have been unable to adequately reduce emissions in the fleet environment and further investment cannot be justified. The Consolidated Plan builds on the collective experience of City Fleets, and lessons learned from previous plans, to cost-effectively achieve our shared goal.

## **RECOMMENDATIONS**

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The Director, Fleet Services Division recommends that:

1. City Council adopt the City of Toronto Consolidated Green Fleet Plan 2014-2018, as outlined in Attachment 1, in place of all previous Green Fleet Plans.
2. City Council direct the Director, Fleet Services Division, the Chief of Toronto Fire Services, and the Chief of Emergency Medical Services to implement the following objectives of the Consolidated Plan:
  - a. Purchase, lease, or otherwise obtain the most fuel-efficient vehicles where appropriate for City operations, while considering lifecycle cost of the vehicle;
  - b. Achieve ISO Certification in the area of Environmental Management (ISO 14000) and Quality Management (ISO 9000) for the Fleet Services Division, and work with other City Fleets to explore the feasibility of their ISO Certification;
  - c. Develop selection criteria for alternative fuels;
  - d. Enhance operational efficiency and driver education; and
  - e. Create one new temporary dedicated Green Fleet Coordinator position in Fleet Services Division for the 2015-2018 period, to be included in Fleet Services' operating budget (subject to Budget Committee approval during the 2015 Budget process), and establish a Green Fleet Team comprised of current staff from each of the participating members of the Fleet Management Steering Committee.

3. City Council delegate to the Director, Fleet Services Division authority to negotiate and execute, and to amend as and when necessary, any agreements necessary to give effect to the implementation of the Consolidated Plan, on terms and conditions satisfactory to the Director, Fleet Services Division and the City Solicitor;
4. City Council direct the Director, Fleet Services Division to:
  - a. Coordinate the implementation of the Consolidated Plan, in consultation with other Fleets, track the progress made in achieving the established targets and report back to Government Management Committee in Q2 2016, Q2 2017, Q2 2018 and provide a final report in Q2 2019; and
  - b. Continue to fund the incremental costs associated with new green technologies for the Centrally Managed Fleet using the Green Fleet Plan Capital Fund (XQ0003) through to 2018, subject to necessary approvals during the annual budget process.
5. City Council direct the Chief of Toronto Emergency Medical Services to:
  - a. Direct staff to actively participate in the implementation of the Consolidated Plan; and
  - b. Examine the feasibility of purchasing smaller more fuel efficient emergency response vehicles.
6. City Council direct the Chief of Toronto Fire Services to:
  - a. Direct staff to actively participate in the implementation of the Consolidated Plan;
  - b. Continue testing hybrid and electric vehicles for short distance regular use applications such as by the Fire Prevention Officer and Training Division Officer;
  - c. Right-size the type of vehicle used by the 16 District Chiefs;
  - d. Assess the feasibility and benefits of implementing a Car-Share program for Fire Prevention Officers in the downtown core by reviewing the outcomes of the pilot program currently being led by Fleet Services Division;
  - e. Expand the use of idle reduction technology currently used on aerial apparatus to other fire apparatus wherever possible; and
  - f. Analyze reducing the amount of outsourced labour to reduce the amount of travel time for apparatus in for repair.
7. City Council direct that this Item be forwarded to the Toronto Transit Commission Board and the Toronto Police Service Board with a request that they adopt and implement the Consolidated Green Fleet Plan 2014-2018.

## **Implementation Points**

The Consolidated Plan focuses on reducing emissions from the operation of almost 10,000 on-road and off-road vehicles and pieces of equipment owned and operated by the City of Toronto. It does not include Toronto Transit Commission streetcar and subway vehicles, or vehicles owned and operated by private companies who contract with the City.

The Consolidated Plan is a living document, and is part of the City's efforts toward making Toronto a sustainable city of choice, as outlined in the City of Toronto Strategic Actions 2013-2018. Achievement of the objectives and targets outlined in this plan will require the cooperation and participation of all City Divisions, Agencies, and Corporations. Accountability and continued engagement will be crucial in the implementation, further development, and success of this Consolidated Plan.

Fleet Services Division, in consultation with other Fleets, will take the lead in coordinating the implementation of the initiatives in the Consolidated Plan and will track the progress made in achieving the established targets. The EED will assist with monitoring the implementation and outcomes of these initiatives. Each of the City Fleets will be responsible for implementing and tracking the progress of initiatives specific to their operations.

The Green Fleet Team, a working-group of the Fleet Management Steering Committee, will be established as part of the Consolidated Plan. This team will consist of the representatives from each of the participating members of the Fleet Management Steering Committee. The Team will be responsible for monitoring the implementation of the strategies, reviewing progress, and making recommendations to the Fleet Management Steering Committee for the Consolidated Plan updates. This includes directional changes as required, subject to review and approval by the City Fleets.

A progress report will be created in Q2 2016, Q2 2017, and Q2 2018. These progress reports will include updates on the implementation of actions, including status, trends, and rate of progress. It will also include changes in environmental circumstances, external drivers and barriers, and updates to any indicators and targets, depending on data availability. Following the completion of the Consolidated Plan, a final report will be created in Q2 2019. It will provide the final progress report for the implementation of the strategies measured against the indicators and targets outlined in the Consolidated Plan.

## **Financial Impact**

The total projected capital cost for Fleet Services, relating to the Centrally Managed Fleet, over five years will be \$500,000. This includes the incremental costs associated with new green technologies. The Fleet Services 2014 Approved Capital Budget and 2015-2020 Approved Capital Plan include annual provisions to fund the green technologies in years 2015 through to 2018, through Capital Project account CFL034.

The total projected operating cost for Fleet Services over five years will be \$519,000. This includes the request for one new temporary dedicated Green Fleet Coordinator position (\$424,000 over five years), and ISO certification and follow-up audits (\$95,000).

The requested funding will be included in the 2015 Fleet Services Operating Budget Submission.

The projected 2014-2018 capital and operating requirements (\$1.019 million) will be funded from the corporate vehicle and equipment replacement reserve, XQ0003.

The implementation of the Consolidated Plan over 2014-2018 for Fleet Services, relating to the Centrally Managed Fleet, is expected to have fairly consistent year-over-year overall costs. Due to the nature of the recommended strategies, however, the full magnitude of potential cost savings will not be fully realised until the final stages of the Consolidated Plan (2017-2018). Most importantly, these potential cost savings will continue beyond the term of this plan. As a result, estimated overall net savings for the Centrally-Managed Fleet for the 2014-2018 period are \$53,000.

**Table A: Fleet Services' Consolidated Green Fleet Plan 2014-2018 Capital and Operating Forecast**

	Forecasted capital cost	Forecasted operating cost	Forecasted total cost	Forecasted cost savings	Forecasted net cost
2014	\$100,000	\$0	\$100,000	\$120,000	(\$20,000)
2015	\$100,000	\$121,000	\$221,000	\$149,000	\$72,000
2016	\$100,000	\$136,000	\$236,000	\$191,000	\$45,000
2017	\$100,000	\$141,000	\$241,000	\$297,000	(\$56,000)
2018	\$100,000	\$121,000	\$221,000	\$315,000	(\$94,000)
<b>Total</b>	<b>\$500,000</b>	<b>\$519,000</b>	<b>\$1,019,000</b>	<b>\$1,072,000</b>	<b>(\$53,000)</b>

The total projected savings of \$1.072 million consists of \$0.942 million in fuel savings and \$0.130 million resulting from decreases in material consumption and increases in operational efficiencies.

The financial implications of the City of Toronto Consolidated Green Fleet Plan 2014-2018 for EMS, TFS, TPS, and TTC are indeterminable at this time. When further information is available, staff will report back to the Government Management Committee with a status update on the potential savings on the implementation of the Consolidated Plan. The ongoing green fleet initiatives within EMS, TFS, TPS, and TTC that will continue as part of the Consolidated Plan, have currently been addressed in each Fleet's existing Capital Programs and Operating Budgets.

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

## **DECISION HISTORY**

In 2007, the City of Toronto Climate Change, Clean Air and Sustainable Energy Action Plan outlined the City's response to the challenge of climate change and poor air quality. It was designed to move the City from a framework for discussion to concrete action, by calling for development of a new Green Fleet Plan. In 2008, building on the outcomes of

the City's Green Fleet Transition Plan 2004-2007, the City of Toronto introduced the Green Fleet Plan 2008-2011 for the Centrally Managed Fleet. At its meeting March 3-5, 2008, City Council unanimously adopted the Green Fleet Plan 2008-2011 for the City's Centrally Managed Fleet (GM12.6).

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2008.GM12.6>

During implementation, City of Toronto Green Fleet Plan update reports were provided:  
2008: <http://www.toronto.ca/legdocs/mmis/2008/gm/bgrd/backgroundfile-15421.pdf>  
2009: <http://www.toronto.ca/legdocs/mmis/2009/gm/bgrd/backgroundfile-20243.pdf>  
2010:

[http://www1.toronto.ca/city\\_of\\_toronto/fleet\\_services/files/pdf/annual\\_update\\_2010.pdf](http://www1.toronto.ca/city_of_toronto/fleet_services/files/pdf/annual_update_2010.pdf)

The final report on the outcomes of the 2008-2011 plan was delayed until now due to resource constraints.

As part of that plan, Council directed Fleet Services to assist EMS, TFS, TPS, and TTC in establishing green fleet plans for their operations. At its meeting on October 29, 2008 Council adopted a Green Fleet Plan for EMS and TFS and endorsed the plan for TPS and TTC (EX24.2).

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2008.EX24.2>

This report provides the outcomes of those plans and presents the next phase of the City's green fleet planning process. This report also addresses Council's direction June 11-13, 2013, in response to the Auditor General's recommendation, that the Director, Fleet Services Division conduct a review of the City's green fleet vehicles and report to Council on the progress on the City's Green Fleet Plan (AU11.7)

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.AU11.7>

## **ISSUE BACKGROUND**

Climate change and air pollution are closely connected and will remain two of the greatest challenges of the twenty-first century. The fossil fuels burned in order to power motor vehicles emit greenhouse gasses (GHG), such as carbon dioxide (CO<sub>2</sub>) that cause climate change, and air pollutants, such as nitrogen oxides (NO<sub>x</sub>) that negatively impact air quality and public health. As a result, many of the actions that reduce GHG emissions related to burning fossil fuels can also reduce air pollution. The severity of impact on our communities will depend in large part on our ability to adopt effective green technologies and practices to reduce harmful emissions. Green fleet planning aims to reduce fossil fuel consumption, fuel costs, and emissions of GHG and air pollutants.

## **COMMENTS**

### **Previous Green Fleet Plans**

For the 2008-2011 period, there were separate Green Fleet Plans for the Fleet Services Division and EMS, TFS, TPS and TTC. The goals of these plans were to reduce fuel use, fuel costs, emissions of GHG, and emissions of smog-causing air pollutants (Centrally Managed Fleet only), and contribute to the reduction of the City's overall environmental impact.

City Fleets total GHG emissions for the 2008-2011 period were approximately 1.14 million tonnes eCO<sub>2</sub>. As shown by the Environment and Energy Division (EED) in 2013 (PE21.5), GHG emissions for the City in 2011 were 37 per cent lower than 1990 levels. Initiatives undertaken by City Fleets as part of the previous Green Fleet Plans made an important contribution to the overall City emission reductions.

The Green Fleet Plan 2008-2011 (Action 1a) committed the Centrally Managed Fleet to meeting the Corporate reduction target for GHG emissions of six per cent below 1990 levels by 2012 (the “Kyoto target”). As reported by EED in March, 2013 (PE21.5), by the end of 2011 Fleet emissions of eCO<sub>2</sub>, including those of EMS and TFS, had decreased by six per cent relative to 1990 levels.

In addition to this target, the Green Fleet Plan 2008-2011 for the Centrally Managed Fleet forecasted GHG emissions avoidance of 15,304 tonnes eCO<sub>2</sub>, or 11 per cent over the 2008-2011 period, compared to the "business as usual" scenario (Table B). This forecast was based on the Centrally Managed Fleet's composition and size in 2008 (the 2008 baseline). Emissions avoided as presented here are reductions relative to the business as usual scenario, not absolute reductions from year to year. The "business as usual" scenario represents the fleet emissions had there been no green fleet initiatives such as alternative fuels or green vehicles.

The total of 11,315 tonnes of GHG emissions avoided over the 2008-2011 period was the result of number of different factors. A combination of green fleet initiatives that were proven to be most effective and sustainable, improvements in environmental standards and regulatory requirements, advancements in conventional vehicle and fuel technologies, and a number of other internal and external factors, contributed to this total. This is based on the actual size and composition of the Centrally Managed Fleet (the 2011 baseline), and represents an eight per cent reduction relative to the business as usual scenario (Table B).

**Table B: Forecasted and Actual 2008-2011 Estimated Greenhouse Gas Emissions for the Centrally Managed Fleet**

2008-2011 Totals	Total "Business as Usual" emissions (without green fleet initiatives)	Total emissions (with green fleet initiatives)	Total emissions avoided from "Business as Usual"	
	(tonnes eCO <sub>2</sub> )	(tonnes eCO <sub>2</sub> )	(tonnes eCO <sub>2</sub> )	(%)
<b>2008-2011 Estimated forecast</b> (2008 baseline)	140,992	125,688	15,304	11
<b>2008-2011 Estimated actual</b> (2011 baseline)	142,966	131,651	11,315	8
<b>Variance</b>	<b>1,974</b>	<b>5,963</b>	<b>(3,989)</b>	<b>(3)</b>

Based on fuel dispensed at FSD-operated City fuel sites and excludes fuel used by vehicles owned and operated by private companies who contract with the City, mobile fuel, and fuel purchased at commercial sites.

The results also indicate that forecasted emission reductions were not fully achieved. This was due in part to the reduction of biodiesel fuel purchases in 2011, because of budget constraints, and partly because of challenges experienced with some of the green

vehicles, technologies, and practices. Caution should be used before comparing the emission forecasts made in 2008 with those made in 2011. It is important to note that between 2008 and 2011 there were major changes in the size and composition of the fleet, and in available information.

The Green Fleet Plan 2008-2011 (Action 1b) committed the Centrally Managed Fleet to meeting the Corporate 20 per cent reduction of 2004 levels for locally generated smog-causing air pollutants by 2012. Estimates provided by EED indicate that the Centrally Managed Fleet will not meet the target. EED reported in 2013 that the preliminary data available indicate that the Corporation as a whole will also not meet the 2012 target (PE21.5). However, a number of different factors lowered criteria air contaminant (CAC) emissions below the levels where they would otherwise have been. Green fleet initiatives that were proven to be most effective and sustainable, improvements in environmental standards and regulatory requirements, advancements in conventional vehicle and fuel technologies, and a number of other internal and external factors were some of the key contributing factors.

In 2008, implementation of the Green Fleet Plan for the Centrally Managed Fleet was forecasted over 2008-2011 period to have a capital cost of \$2.0 million and operating net savings of \$4.032 million, resulting in total net savings of \$2.032 million. Actual values were lower, with a capital cost of \$1.277 million and operating net savings of \$1.620 million, resulting in total net savings of \$343,000 (Table C).

**Table C: Forecasted and Actual Financial Impact of the Green Fleet Plan 2008-2011 for the Centrally Managed Fleet**

<b>2008-2011</b>	<b>Forecast</b>	<b>Actual</b>	<b>Variance</b>
<b>Capital cost</b>	\$2,000,000	\$1,277,000	(\$723,000)
<b>Operating net savings</b>	\$4,032,000	\$1,620,000	(\$2,412,000)
<b>Total net savings</b>	<b>\$2,032,000</b>	<b>\$343,000</b>	<b>(\$1,689,000)</b>

As part of the 2008-2011 forecasted capital spending, the Centrally Managed Fleet established specific targets for the number of green vehicles forecasted to be acquired during this period. One of the lessons learned, from the implementation of the 2008-2011 Plan, however, is that establishing specific green vehicle acquisition targets is unrealistic as it does not address the City's operational requirements. This will be addressed as part of the Consolidated Plan. A key objective, therefore, of the Consolidated Plan is to apply a more strategic and realistic approach when purchasing, leasing, or otherwise obtaining the most fuel-efficient vehicles where appropriate for the City Fleets' operations, while considering the lifecycle cost of the vehicle.

Actual operating net savings were lower than anticipated because the forecasted fuel savings estimated to result from reduced idling were not achievable. On the operating side, \$3.456 million, or 86 per cent, of the \$4.032 million in forecasted savings from the implementation of the Green Fleet Plan 2008-2011 for the Centrally Managed Fleet, was attributed to and expected to come from ten per cent fuel savings across the board, as a result of the Idle-Free initiatives. The highly optimistic forecast made at the time was not achievable in real-world conditions, and as a result, the actual outcomes have come well



short of that. The Consolidated Plan takes a more practical and achievable approach to estimating fuel savings from reduced idling.

The City of Toronto has been a Canadian leader in pilot testing and adopting environmentally preferable vehicles and equipment. As part of the previous Green Fleet Plans, City Fleets have undertaken numerous pilot projects involving new and emerging green vehicle technologies. Some of these technologies have been successful and have been adopted by City Fleets. These include:

- LED lights, auxiliary batteries, anti-idling devices, inverters, and other technologies for vehicles and equipment that reduce fuel consumption and emissions, have been installed on a large number of vehicles and equipment;
- Hybrid vehicles and equipment adoption in areas with high operational utilisation.

Unfortunately, not every green solution tested and adopted by the City has been able to adequately reduce emissions and or justify the investment made:

- Most of the plug-in hybrid electric vehicles (PHEV) and battery electric vehicles (BEV) that have been added to the Centrally Managed Fleet would require higher utilization than they have had, in order to reach their potential for reducing fuel consumption and lowering the total cost of vehicle ownership. In real-world conditions, particularly in a climate with extreme temperatures, adequate range in BEVs is an impediment to high utilisation that needs to be managed;
- Many of the alternative fuels tested and used by City Fleets were not sustainable due to cost and lack of infrastructure, as in the case of hydrogen, or the actual cost of the fuels, as in the case of biodiesel, particularly during the last economic downturn.

In 2013, in response to recommendations from the Auditor General (report AU11.7), FSD committed to consult with Key User Divisions, review the City's green fleet vehicles, and provide a progress report on the City's Green Fleet Plan. FSD consulted with Key User Divisions, and the received feedback forms an important part of the review of the green vehicles' performance and suitability for City operations. The highlights and outcomes of the review are included in the Consolidated Green Fleet Plan 2014-2018, Appendix B. To complement this information, FSD will perform a quantitative, lifecycle analysis of the green vehicles and report the results to Government Management Committee in Q2 2016 as part of the first progress report on the Consolidated Plan. Addressing the request for a Green Fleet Plan progress report, FSD has evaluated the City's past Green Fleet Plans and is introducing the Consolidated Green Fleet Plan 2014-2018.

## **Consolidated Green Fleet Plan 2014-2018**

The 2008-2011 Green Fleet Plans took the City a long way toward reaching environmental goals for its fleets, however, there is still progress to be made. Climate change and air pollution are closely connected and will remain two of the greatest challenges of the twenty-first century. City Fleets are responding to those challenges by developing the new Consolidated Plan, which draws on our collective past experience to better manage or mitigate the issues presented by balancing green initiatives and fiscal

responsibility. Green technologies and management practices are available and can help the City achieve its environmental goals. City Fleets are determined to work together to implement green solutions while minimizing costs.

Recognizing the benefits derived from cooperation, and the need to be more strategic, the five major City of Toronto Fleets, have come together to create the Consolidated Green Fleet Plan 2014-2018. The Consolidated Plan articulates the collective vision of City Fleets and will assist the City of Toronto in meeting its strategic goal of environmental sustainability.

The goal of the Consolidated Plan through 2018 is to choose vehicles, equipment, fuels, and practices that consume less fuel and emit less GHG and air pollution, meet the City Fleets' operational requirements, are sustainable, and are economically viable. The Consolidated Plan sets realistic objectives that will measure our progress toward the established goal, and includes specific, measurable strategies to accomplish these objectives.

The Consolidated Green Fleet Plan 2014-2018 objectives are:

- a. Purchase, lease, or otherwise obtain the most fuel-efficient vehicles where appropriate for City operations, while considering lifecycle cost of the vehicle;
- b. Achieve ISO Certification in the area of Environmental Management (ISO 14000) and Quality Management (ISO 9000) for the Fleet Services Division, and explore the feasibility of ISO Certification for other City Fleets;
- c. Develop selection criteria for alternative fuels;
- d. Enhance operational efficiency and driver education; and
- e. Create one new temporary dedicated Green Fleet Coordinator position in Fleet Services Division for the 2015-2018 period, to be included in Fleet Services' operating budget (subject to Budget Committee approval during the 2015 Budget process), and establish a Green Fleet Team comprised of current staff from each of the participating members of the Fleet Management Steering Committee.

### **Benefits, costs and savings:**

The Consolidated Plan objectives, and associated strategic actions, were developed to support the City's overall environmental sustainability goal outlined in the City of Toronto Strategic Actions 2013-2018. By implementing this Consolidated Plan, City Fleets will contribute to the City's GHG reduction target of 30 per cent below 1990 levels by 2020, helping to mitigate climate change. Implementation of the Consolidated Plan for the Centrally Managed Fleet, EMS, and Fire Services is anticipated to result in approximately 5,800 tonnes of avoided GHG emissions (relative to the total number of vehicles and equipment). This is in line with reaching the City's 2020 GHG reduction target of 30 percent.

Although the GHG emissions from City Fleets are relatively small compared to the emissions associated with both natural gas and electricity used for the City's corporate operations, the Fleets are a significant source of the City's emissions of criteria air contaminants (CAC). CAC are a set of air pollutants that cause smog, acid rain, and other

health hazards. Of particular note are the emissions of nitrogen oxides (NOx), a group of CACs from heavy vehicles, and volatile organic compounds (VOC).

Studies conducted over the last decade, including the recent Local Air Quality Study of Ward 5 and Ward 6 (Etobicoke-Lakeshore), have identified increasing air quality issues associated with major urban areas that can cause adverse health effects even at the low ambient concentrations that now generally prevail in cities in North America and Western Europe.

The challenge for the City of Toronto and other urban centres in Canada as they continue to grow is to develop and implement management strategies that will help reduce not only emissions of GHG that cause climate change, but also the emissions of air pollutants that impact local air quality. The Consolidated Plan is designed to address both GHG and air pollutants emissions, while contributing to ongoing efforts to meet the ever-evolving operational needs and economical requirements of the City of Toronto in the most efficient and effective way. Implementing the Consolidated Plan will contribute to the City's objective of reducing air pollutant emissions by 20 per cent below 1990 levels, to protect local air quality and human health.

Other benefits of the Consolidated Plan include increased cooperation among the City's five major fleets, expanded monitoring and reporting of estimated air pollutant emissions, increased operational efficiency, reduced waste and cost, and improved corporate image and credibility among the public and regulators.

The benefits, costs, and savings for each Consolidated Plan objective are described below, projected over 2014-2018 for the Centrally Managed Fleet.

#### **Objective A. Fuel-efficient vehicles:**

The anticipated net cost of this objective over 2014-2018 period is \$239,000 for the Centrally Managed Fleet. This is made up of \$500,000 in capital costs for the incremental cost of fuel-efficient vehicles funded from the corporate vehicle reserve, less an estimated \$261,000 in fuel savings from the fuel-efficient vehicles.

Advancements in conventional vehicle technology are likely to make a greater contribution to reaching the established GHG and air pollutant reduction targets than previously thought. As a result of 2013 federal regulations, the Government of Canada estimates that by 2018, GHG emissions from 2018 model year heavy-duty vehicles will be reduced by up to 23 per cent relative to 2008 levels. Also, it is projected that by 2025 vehicles will consume up to 50 per cent less fuel than 2008 vehicles, leading to potentially significant fuel cost savings. These improvements to fuels and technologies help mitigate emissions from the City's Fleets, however, substantial work remains to reduce emissions of GHGs and air pollutants, necessitating a new Consolidated Plan for the next five years.

## **Objective B. ISO certification and Objective E. Green Fleet Coordinator:**

An Environmental Management System (EMS), such as the ISO 14001 standard, provides a framework to ensure that all environmental aspects of organization's responsibilities are accounted for. An EMS provides evidence that proper care and due diligence was exercised in exercising any legal duty of care to which an organization may be held.

Adopting ISO Environmental Management System standards is a leading practice among municipalities in Ontario and across Canada for managing and improving environmental performance. Municipalities that are utilizing the ISO environmental standards include the Regions of York, Waterloo, and Durham, Town of Richmond Hill, and the Cities of Kitchener, Hamilton, Calgary, Edmonton, Halifax, and Quebec City.

Using ISO, these municipalities can analyze and reduce the environmental impact of their activities and services, while operating with greater efficiency and control. Key benefits include:

- Improved corporate image and credibility among the public and regulators
- Legislative awareness and compliance
- Reduced waste and costs
- Savings in consumption of energy and materials
- Improved communication and emergency response

The Centrally Managed Fleet anticipates achieving ISO certification of its benchmark facility by the end of first quarter 2017. As such, most of the benefits of this process will be more fully discerned after that time.

Establishing dedicated resources, such as a coordinator, is also a leading practice among Canadian municipalities that have implemented ISO Environmental Management System standards. The City's experience with previous green fleet plans shows the importance of dedicated resources for ensuring successful implementation, monitoring and compliance with respect to green fleet initiatives. In order to coordinate, implement, analyze, and report on the progress of the Consolidated Plan's objectives, a new Green Fleet Coordinator position in Fleet Services, and a Green Fleet Team, made up of existing staff from the five Fleets, are recommended. This will enable coordinated implementation, analysis, progress reporting, and assist the five Fleets in achieving the Consolidated Plan's anticipated savings and environmental benefits.

ISO certification of one facility and the dedicated enabling resource for Green Fleet Plan coordination have a combined anticipated cost of \$519,000 and cost savings of \$130,000 over 2014-2018 period for the Centrally Managed Fleet. The estimated savings would come from improved productivity, reduced waste, and reduced energy and material consumption. The full magnitude of potential cost saving will be fully realised in the final stage of the Consolidated Plan (2017-2018), and most importantly, will continue beyond the term of this plan.

### **Objective C. Alternative fuels:**

The implementation scenario described here assumes that the only alternative fuels used over 2014-2018 period will be natural gas and electricity. The benefits of these alternative fuels are reduced emissions of GHGs and air pollutants, and reduced fuel costs.

Implementing these alternatives is anticipated to result in net savings of \$333,000 over 2014-2018 period for the Centrally Managed Fleet. Savings are anticipated because the costs of these fuels are lower than the cost of conventional fossil fuels. If biofuels are used in future they will result in significant avoided tailpipe emissions, though likely at an increased cost.

The GHG emissions from fuel are substantial. Purchasing sustainable biofuels can offer an environmental benefit, generally at an increased cost. However, the emission reductions that can be gained by the City proactively purchasing biodiesel in place of conventional fuels, are lower today than they were in years past. This is because Federal and Provincial regulation has improved some aspects of the conventional fuels available today. Currently, diesel fuel sold in Ontario must contain two per cent biofuel on average and is expected to increase in coming years. In 2016 the percentage of biofuel in Ontario diesel rises to three per cent and in 2017 and beyond the biofuel content will be four per cent. This regulated biodiesel content will result in additional GHG emissions avoided for the Centrally Managed Fleet over 2014-2018 at no additional cost.

One of the objectives of the Consolidated Plan is to develop selection criteria for alternative fuels. Fleets have the option of incorporating biodiesel or any other alternative fuel in the future, if analysis indicates it would be beneficial.

### **Objective D. Driver education:**

The benefits of enhanced driver education include safer driving, less idling, lower fuel consumption and avoided emissions of GHGs and air pollutants. Reducing idling reduces waste. It also lowers fuel cost and improves public confidence in the City.

Driver education to reduce idling is anticipated to result in net fuel savings of \$112,000 over 2014-2018 for the Centrally Managed Fleet.

### **Existing green vehicles:**

In addition to the objectives of the Consolidated Plan, green vehicles that were added to the fleet under the previous Green Fleet Plans also play an important role in the fleet of today and tomorrow. Once proven viable and sustainable, a fuel-efficient vehicle or technology is added to the fleet. It then continues to provide fuel savings relative to conventional technologies over its operational lifetime.

Fuel efficient vehicles that are already in operation, and will continue to be in service over 2014-2018 period, are anticipated to provide estimated fuel savings of \$236,000 over this five year period for the Centrally Managed Fleet, relative to less fuel-efficient, conventional technologies.

City Fleets will lead by example to help create a clean, sustainable City of Toronto and continue to advance the City's vision, mission, and goals. Given the speed at which technology changes, there will be a need to adapt the implementation to accommodate new opportunities as they arise. The actual cost savings and environmental benefits will depend on the actual implementation over the five years, and will form the basis of regular progress reports. The reports will provide a status update on fiscal sustainability and environmental benefits. This analysis will be used to make adjustments to the implementation of the Consolidated Plan.

The objectives and strategies upon which the Consolidated Green Fleet Plan 2014-2018 is built provide the structure for ensuring that City Fleets' efforts are sustained over the next several years. This harmonized and balanced approach is designed to meet the long-term economic, operational, and environmental needs of the City.

## **CONTACT**

Lloyd Brierley  
Director, Fleet Services Division  
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## **SIGNATURE**

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Lloyd Brierley  
Director, Fleet Services Division

## **ATTACHMENTS**

Attachment 1: City of Toronto Consolidated Green Fleet Plan 2014-2018