City of Toronto

Consolidated Green Fleet Plan

2014-2018

TORONTO

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.

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1. Executive Summary

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 the 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 ("City 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). By working collaboratively, the City Fleets can more efficiently and effectively meet emissions reduction targets. As such, this plan has been designed with input from each of the five major City Fleets to ensure we have a realistic and cost-effective action plan for the next five years. The Consolidated Plan aims to protect the environment and public's investment in the City. Our present environmental and economic climate is not the same today as it was in years past. We are committed to acting on lessons learned from previous green fleet plans in order to successfully deliver on our stated objectives herein.

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 gases (GHG) such as carbon dioxide (CO_2) that cause climate change, and air pollutants such as nitrogen oxides (NO_x) 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.

As part of the previous Green Fleet Plans, City Fleets have undertaken numerous pilot projects and invested in new and emerging green vehicle and fuel technologies. Some of these technologies have been successful and have been adopted by City Fleets:

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

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

- Most of the plug-in hybrid electric vehicles (PHEV) and battery electric vehicles (BEV) that have been added at 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 utilization that needs to be managed;
- Capital and operating cost premiums of hybrid buses purchased by TTC outweigh the actual fuel savings;
- Many of the alternative fuels tested and used by City Fleets were unsustainable 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;

Based on the varied success rate of past technological testing, City Fleets are strategically working together to ensure we are making the best possible use of green technologies available, and will now strive to invest only in those that are operationally required, and those that are sustainable, and economically viable.

Our goal looking forward through 2018 is to choose vehicles, equipment, fuels, and practices that consume less fuel and emit less GHG and air pollution, meet the City's 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:

- Purchase, lease, or otherwise obtain the most fuel-efficient vehicles where appropriate for City operations, while considering lifecycle cost of the vehicle;
- Achieve International Standardization Organization (ISO) certification in the area of Environmental Management (ISO 14000) and Quality Management (ISO 9000) for Fleet Services Division, and explore the feasibility of ISO Certification for the other City Fleets;
- Develop selection criteria for alternative fuels;
- Enhance operational efficiency and driver education;
- 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.

These objectives, and associated strategic actions, were developed to complement the City's overall environmental sustainability strategic goals outlined in the *City of Toronto Strategic Actions 2013-2018*. 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.

In summary, the Consolidated Plan builds on lessons learned from previous plans, and represents an evolution in the City's commitment to reducing negative environmental impact, while pursuing cost-effective solutions. Where previous plans have been ambitious, our new plan takes an optimistic, yet realistic approach. The Consolidated Plan draws upon the combined strength and experience of the five major City of Toronto Fleets.

The objectives and strategies captured herein 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 and operational needs, and the environmental goals of City Fleets.

This Consolidated Plan focuses on reducing emissions from the operation of almost 10,000 on- road and off-road vehicles and 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.

City Fleets' green fleet strategy relies on the engagement of City Divisions, Agencies, and Corporations who operate City vehicles to ensure success. We believe the Consolidated Plan is the conduit to this success.

2. Introduction

Climate change and air pollution are closely connected and will remain two of the greatest challenges of the twenty-first century. 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.

Municipal governments across Ontario, and the rest of Canada, face significant challenges to manage the competing service demands of our communities, local and regional environments, and our economies. At the same time, municipal governments are more involved than any other level of government in delivering a wide range of services directly to the public.

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 the 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, and the Green Fleet Plan for TTC, Police, Fire and EMS 2008-2011. These plans addressed the most pressing issues at the time.

Recognizing the benefits that come from greater cooperation, and the need to be more strategic, the five major City of Toronto Fleets have developed the City of Toronto Consolidated Green Fleet Plan 2014-2018 (Consolidated Plan) that articulates the collective vision of the City Fleets. It builds on collective experience and lessons learned from previous plans, 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 Consolidated Plan will support and contribute to the City's overall environmental sustainability strategic goal outlined in the City of Toronto Strategic Actions 2013-2018.

The Consolidated Plan was developed jointly by 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 also benefits from the assistance of Toronto Environment and Energy Division (EED) staff and input from City Divisions and Agencies.

2.1 Purpose

The goal of the Consolidated Plan 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.

There are a number of different reasons for having a green fleet plan. A green fleet is a fleet that does its best to minimize fuel consumption and exhaust emissions. It will also seek to minimize the amount of traffic it generates by utilizing vehicles efficiently. A green fleet is also a safe fleet, whose drivers are trained and encouraged to drive safely and efficiently. Last but not least, making more efficient use of the City's fleet resources has the potential to generate significant cost savings for the City of Toronto.

Much of green fleet management is simply good business practice, and there does not need to be a particular problem to justify action. The issues covered by green fleet management change over time, but will always include: fuel consumption management, reduction of kilometres travelled, driver education, promotion of energy efficient vehicles, and use of cleaner fuels, whenever operationally required, sustainable, and economically viable.

This methodology helps the City of Toronto achieve many different objectives. Reducing fuel consumption lowers the City's fuel costs and helps conserve fossil fuel resources. It also reduces emissions of the GHG that cause climate change and the air pollutants that create smog and cause negative impacts to health, contributing to achieving the goals and objectives of the City's Strategic Actions.

2.2 Challenges and Opportunities

The economic challenges caused by the 2008 global recession have forced the City of Toronto to make tough decisions. Without access to revenues that grow with the economy, and without long-term investment from other levels of government, the City and other municipalities face a gap between their growing responsibilities and the resources available to meet them.

In Canada, the environment is an area of shared responsibility between federal and provincial governments, with local governments as partners. In many cases, however, municipal policies have more impact on the environment than the provincial or federal policies. Municipal policies are also critical in enhancing quality of life and making communities more attractive for investment and businesses. Despite funding challenges, municipal environmental initiatives must continue to expand in order to meet the needs of citizens, while contributing to environmental and economic objectives.

The continued increase in GHG and air pollutants is a major global concern given the associated environmental, social, and economic impacts. The interaction of many factors which contribute to GHG and air pollutant emissions creates a complex challenge, for which no simple solutions exist.

The City of Toronto and other governments in Canada are already greening operations to reduce the impacts on climate. More than 80 per cent of Canadians live in urban areas, where air pollution tends to be most significant (Human Resources and Skills Development Canada, 2010). The Ontario Medical Association has estimated that air pollution costs more than one billion each year in hospital admissions, emergency room visits, and absenteeism.

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). These air pollutants give rise to smog and acid rain.

Of particular note are the emissions of nitrogen oxides (NO_X), a group of CACs, from heavy vehicles. NO_X can be harmful to human and animal respiratory systems, and can also damage plant life. Further, another group of CACs known as volatile organic compounds (VOC) can be toxic to humans. Therefore, a green fleet plan for City Fleets that is consistent with the City of Toronto Strategic Actions is crucial. The Consolidated Plan is not only designed to address the City Fleets' environmental impact, but also contribute to ongoing efforts to meet the ever evolving operational needs and economical requirements of the City of Toronto.

In addition, Toronto's continuous growth has increased the demand for services provided by the City of Toronto. This has led to an increased demand and utilization of City resources, including vehicles and equipment. As a result, the overall amount of fuel used by the City Fleets has increased accordingly. 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 emissions of GHG and CAC.

Fortunately, advancements in conventional vehicle technology can likely 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.

With new technologies, funding opportunities, and challenges constantly emerging and developing, every effort will be made to take advantage of the best opportunities available to green City Fleets, while meeting the operational needs of the City Divisions, Agencies, and Corporations, and remaining sustainable and economically viable. As Canada's largest city, Toronto has a responsibility to rise to the challenges posed by GHG emissions and air quality and provide leadership in greening its fleet operations.

3. Green Fleet Plan 2008-2011 Progress Report and Evaluation

For the 2008-2011 period, there were separate Green Fleet Plans for the Fleet Services Division, and EMS, TFS, TPS, and TTC. The goal of these plans was 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.

Both Green Fleet Plans included specific initiatives in the areas of emission reduction, vehicles, fuels, sustainable choices, and maintenance and management practices. This report evaluates Toronto's actual progress in greening its fleets compared to this target scenario. Detailed reports on the achievement of those targets are included in Appendices B through F of this document.

Emission Reduction Targets

The GHG and air pollutant emissions for the City Fleets are estimated based on the amount and type of fuel burned in City Fleets' vehicles and equipment.

The 2008-2011 Green Fleet Plan emission reduction targets matched the targets adopted by the City Council for the entire City of Toronto. The GHG reduction target was six per cent reduction by 2012 from the 1990 levels, and for the Centrally-Managed Fleet 20 per cent reduction for locally generated smog-causing air pollutants from 2004 levels by 2012.

City Fleets' total GHG emissions for the 2008-2011 period were approximately 1.14 million tonnes of carbon dioxide equivalents ($^{e}CO_2$). As shown in the 2013 report by the Environment and Energy Division, Summary of Toronto's 2011 Greenhouse Gas and Air Quality Pollutant Emissions Inventory, GHG emissions in 2011 were 37 per cent lower than 1990 levels for the City of Toronto. Initiatives undertaken by City Fleets as part of the previous Green Fleet Plans made an important contribution to the overall City emission reductions.

According to the Environment and Energy Office (2013), City air pollutant emissions in 2011 were 1.5 per cent higher than in 2004, but the data used for this analysis are considered to be incomplete. Toronto Environment and Energy Division plan to complete a more detailed inventory study which will incorporate greater detailed data and provide a more accurate update on the City's progress for both greenhouse gas and air pollutant emissions.

One of the lessons learned through implementation of the 2008-2011 Plans is that future plans must increasingly address not only GHGs that cause climate change, but also the air pollutants (CACs) that impact local air quality. As part of the Consolidated Plan, all City Fleets will track and measure both GHG and CAC generated by their vehicles and equipment.

Vehicles

The City of Toronto has been a leader in Canada 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 utilization.

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 utilization that needs to be managed;
- Capital and operating cost premiums of hybrid buses purchased by TTC outweigh the actual fuel savings.

In City Fleets' experience, purchasing vehicles from small, start-up manufacturers carries the risk of bankruptcy which results in having no access to warranty provisions or repairs. Similarly, making major modifications to vehicles carries the risk of voiding the vehicle's warranty.

As a result of this experiential learning, City Fleets have become more strategic in our approach to pilot testing and adopting new environmentally friendly technologies, and will now strive to invest only in those that are operationally required, and those that are sustainable, and economically viable.

Fuels

City Fleets have tested and used a number of different alternative fuels over the years. However, many of these 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.

Since the 2008-2011 Plans were introduced, the Federal government has mandated that gasoline and diesel in Canada must contain small quantities of fuel from renewable sources. Biofuels are available that reduce GHG and air pollutant emissions over their lifecycle relative to gasoline and diesel. If biofuels are used in future they will result in significant avoided tailpipe emissions, though likely at an increased cost.

Though more alternative fuel products are coming to market, it is likely that the most cost-effective management scenario will still involve gasoline and diesel fuels for most vehicle and equipment applications. City of Toronto Fleets will develop alternative fuel decision criteria to help determine the best entry point for each alternative fuel, balancing fuel cost parameters with other benefits of using alternative fuels.

Sustainable Choices

City Fleets' experience clearly indicates that there are significant environmental and cost benefits to be gained from reducing vehicle idling, promoting fuel-efficient driving techniques, and reducing vehicle kilometres travelled. City Fleets recognize the importance and benefit in terms of fuel savings of further promoting and implementing these initiatives. However, City Fleets' experience also shows that this activity requires sustained energy and resources to shift drivers to a culture of conservation. It also shows that establishing clear and measurable tracking methods for these initiatives is a challenge.

Maintenance and Management Practices

Consistent review and further development of the green fleet initiatives to reflect changing conditions and identify new actions for implementation is critical. In the past, however, we lacked sufficient resources required for implementation, monitoring, and compliance of the green fleet initiatives. Recognizing this as one of the key components in the success of implementation of future green fleet initiatives, City Fleets are committed to ensuring such resources are established as part of the Consolidated Plan.

The City of Toronto is recognized as one of the leaders in testing, implementing, and supporting new environmentally responsible fleet technologies and management policies in Canada. To ensure the City continues to manage its fleets in an environmentally and fiscally responsible manner, the Consolidated Plan recommends the City's fleet operations obtain ISO certification in the area of Environmental Management (ISO 14000) and Quality Management (ISO 9000). Both of these areas will highlight the leadership of the City of Toronto, increase public and stakeholder confidence, and provide a model for other municipalities and businesses in the Greater Toronto Area, and the rest of the country.

City Fleets have also made significant efforts over the last few years in adopting additional green practices at their maintenance facilities, such as using synthetic transmission oil to extend the time interval between oil changes, using eco-certified hydraulic oil, and recycling used engine oil.

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. The Consolidated Plan 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.

4. City of Toronto Consolidated Green Fleet Plan 2014-2018

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 Plan. Three of the five fleets (City Fleets) covered by the Consolidated Plan are those 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 new Consolidated Plan articulates the collective vision of City Fleets and will contribute to the City of Toronto meeting its environmental goals and future emission reduction targets.

This Consolidated Plan focuses on emissions from the operation of almost 10,000 on-road and off-road vehicles and 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 goal of the Consolidated Plan is to choose vehicles, equipment, fuels, and practices that consume less fuel and emit less GHG and air pollution, meet the City's and Fleets' operational requirements, are sustainable, and are economically viable. The Consolidated Plan builds on the collective experience of City Fleets and lessons learned from the previous plans to more efficiently and cost-effectively reach our goal.

In addition, the need for emission standards is a recognized priority for businesses and governments. Standards can provide clear guidelines, help structure processes, and set quality norms for the rapidly developing field of environmental management.

ISO has been a global leader in developing environmental management standards that help streamline procedures and unify definitions and requirements for climate change mitigation and related actions of businesses, organizations, and governments.

The ISO environmental management standards series is internationally recognized for its program neutrality, compatibility, and ease of auditing. These key features will provide a foundation for continued environmental management and the development of standardization for the City of Toronto Fleets.

The Consolidated Plan consists of five objectives, and specific strategies to reach our established goal, with measurable targets and performance indicators. 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.

4.1 Goal and Objectives

The goal of the Consolidated Plan is to choose vehicles, equipment, fuels, and practices that consume less fuel, emit less GHG and air pollution, meet the City Fleets' operational requirements, and are both sustainable and economically viable.

The goal of this Consolidated Plan will be accomplished by implementing strategies that are directly under the City's operational control. These strategies make use of data available to measure the City's environmental performance over time.

Based on the City Fleets' past experience, future plans must increasingly address not only climate change related to GHG emissions, but also the air pollutants (CAC) that impact local air quality. As part of the Consolidated Plan, all City Fleets will track and measure both GHG and CAC generated by their vehicles and equipment. By implementing objectives and strategies outlined in this Consolidated Plan, City Fleets will contribute to the City's GHG reduction target of 30 per cent by 2020, compared to the 1990 levels, and 20 per cent reduction target for locally generated smog causing pollutants, compared to the 2004 levels.

City Fleets recommend the following objectives, strategies, and related targets:

Objectives, Implementation Strategies, and Related Targets

A. Purchase, lease, or otherwise obtain the most fuel-efficient vehicles where appropriate for the City operations, while considering lifecycle cost of the vehicle

Popular perception is that hybrid and electric vehicles are the only types of vehicles that provide environmental benefit. Each year, Natural Resources Canada recognizes the most fuel-efficient vehicles with the ecoENERGY awards published annually in their Fuel Consumption Guide. Vehicles included in this category are not only those with alternative fuels and green technologies, but include mainstream vehicles that are fuel efficient and produce fewer emissions.

It is important to raise awareness about the availability of such vehicles so that when it comes time to replace an old vehicle, just as we would consider the engine type or horsepower of the new vehicle, we also take into consideration its fuel efficiency and emission factors.

Included in this approach will be an assessment of risk associated with the purchase or lease of new vehicles. Moving forward, City Fleets will aim to purchase from major, stable manufacturers, lease or rent from start-up companies instead of buying, and avoid making major after-market modifications to vehicles. These strategies will help direct limited resources to more sustainable technologies.

Also included in this approach will be an assessment of the anticipated utilization of the vehicle technology. Generally speaking, fuel-saving technologies become more beneficial and cost-effective the more they are used. Procurement criteria will be set to direct green technologies to those sites and applications that are putting many kilometres/hours on vehicles and equipment.

Implementation Strategy:

Update the City Vehicle and Equipment Replacement Policy to include a minimum fuel efficiency standard and minimum emissions standard for each vehicle class for which the City has a procurement specification and include such a standard in any new vehicle procurement specification.

Indicator A1: Average fuel efficiency of City Fleets vehicles (by vehicle category)

Target A1: Two per cent annual increase in fuel efficiency

B. Achieve ISO Certification in the area of Environmental Management (ISO 14000) and Quality Management (ISO 9000) for Fleet Services Division, and explore the feasibility of ISO Certification for the other City Fleets

The City of Toronto is recognized as one of the leaders in testing, implementing, and supporting new environmentally responsible fleet technologies and management policies in Canada. To ensure the City continues to manage its fleets in an environmentally and fiscally responsible manner, the new Consolidated Plan recommends ISO certification in the area of Environmental Management (ISO 14000) and Quality Management (ISO 9000).

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.

Coordinated implementation of the environmental management tools (ISO 14000) with quality management and quality assurance tools (ISO 9000) provides for the greatest benefits to the City Fleets and associated green fleet initiatives, operational efficiencies, and quality of service. ISO certification will highlight the leadership of the City of Toronto, increase public and stakeholder confidence, provide opportunities to reduce resource and material use, reduce energy consumption, and provide examples for other municipalities and businesses in the Greater Toronto Area, and the rest of the country.

Implementation Strategy:

Phase 1 – Fleet Services Division (Centrally-Managed Fleet) will complete the ISO certification for a benchmark facility by Q1 2017

Phase 2 – Fleet Service Division will assess the ISO certification for its remaining facilities by Q4 2018.

Phase 3 – Fleet Service Division will work with other City Fleets at assessing the feasibility of ISO certification for those fleets by Q1 2018.

Phase 4 – Commence ISO certification work for all other identified City Fleets by Q4 2018.

C. Develop selection criteria for alternative fuels

The GHG emissions from fuel are substantial. Purchasing sustainable biofuels can offer an environmental benefit, though likely at an increased cost. However, the emission reductions that can be gained by the City proactively purchasing biodiesel are lower today, relative to conventional fuels, than they were in years past.

This is because Federal and Provincial regulation has improved some aspects of the conventional fuels available today. For instance, a biodiesel component is now required in all diesel sold in Ontario and is expected to increase over time. Currently, diesel fuel sold in Ontario must contain two per cent biofuel on average. In 2016 the proportion of biofuel in Ontario diesel rises to three per cent, and in 2017 and beyond the bio 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.

As indicated in the Green Fleet Plan 2008-2011 Progress Report and Evaluation section, City Fleets have tested and used a number of different alternative fuels over the years. Many of these were not sustainable due to lack of fueling infrastructure, as in the case of hydrogen, or the actual cost of the fuel, as in the case of biodiesel. If chosen carefully, biofuels can be an effective way to reduce emissions across City Fleets, though likely at an increased cost. Though more alternative fuel products are coming to market, it is likely that the most cost-effective management scenario will still involve gasoline and diesel fuels for most vehicle and equipment applications. Selection criteria will be developed to determine which alternative fuels should be used, based on a number of factors. The degree of implementation of alternative fuels and technologies depends on future price factors, technological advancements, City priorities, and availability of funding.

Implementation Strategy:

City of Toronto Fleets will develop an alternative fuel decision criteria to help determine the best entry point for each alternative fuel, balancing fuel cost parameters with other benefits of using alternative fuels by Q4 2015.

D. Enhance operational efficiency and driver education

City Fleets' experience clearly indicates that there are significant environmental and cost benefits to be gained from reducing vehicle idling, promoting fuel-efficient driving techniques, and reducing vehicle kilometres travelled. City Fleets recognize the importance and benefit in terms of fuel savings of further promoting and implementing these initiatives. However, City Fleets' experience also shows that this activity requires sustained energy and resources to shift drivers to a culture of conservation. It also shows that establishing clear and measurable tracking methods for these initiatives is a challenge.

Implementation Strategy D1:

City Fleets will continue to provide training to their drivers and operators on efficient driving, awareness of environmental issues, and potential cost savings. Fleet Services Division will enhance this program by developing and implementing an Eco-driving Campaign. This campaign will be shared with the other City Fleets for discussion and implementation.

Indicator D1.1: Eco-driving campaign developed and implemented

Target D1.1: By Q4 2015

Implementation Strategy D2:

City Fleets will continue deployment of cost effective idle-reducing technologies.

Implementation Strategy D3:

City Fleets will continue to rationalize vehicle need, review and adopt feasible transportation alternatives, and encourage City vehicle users to reduce vehicle kilometres travelled.

The City of Toronto is undertaking a one year Pilot Project (February, 2014 – January, 2015) which will provide a limited number of City Staff with access to car-share program vehicles. The goal of this Pilot Project is to explore the potential cost benefit of car-sharing compared to transportation options currently used, such as City owned vehicles.

City Fleets will eliminate any vehicles identified as underutilized (light-duty) or excess vehicles. Eliminating excess vehicles discourages non-critical trips and increases utilization of existing vehicles.

Indicator D3.1: Car-share Pilot Project completed successfully

Target D3.1: Pilot Project completed on January 31, 2015 and full cost-benefit analysis provided by Fleet Services by June 30, 2015

Indicator D3.2: Per centage of light-duty vehicles that are underutilized

Target D3.2: No more than 20 per cent of the City's light-duty vehicles are underutilized (excludes vehicles with unique operational requirements that justify low utilization)


City of Toronto
STRATEGIC ACTIONS
2013 - 2018
TORONTO


ENVIRONMENTAL SUSTAINABILITY
Environmental Awareness
Awareness of environmental impact results in active public participation in environmental improvements.
Environmental Sustainability
Human activities and consumption are balanced with the environment's ability to absorb emissions and impacts.
Environmental Health
The health of residents is protected from environmental risks.

Implementation Strategy D4:

The City is continuing its efforts to rationalize fuel site locations and number, address environmental needs, and control and manage City operated fuel sites. Having fewer fuel sites reduces the environmental risk posed by by fuel operations and aging fuel tanks.

Indicator D4: City fuel site closures/ upgrades

Target D4: City will close five of its fuel sites in 2014, three in 2015, and one in 2016

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

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 and key role dedicated resources have in ensuring success of implementation, monitoring, and compliance of the 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.

4.2 Implementation

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. It will also depend on building upon existing partnerships with federal and provincial legislators, community groups, businesses, and foundations, in addition to forging new partnerships. Accountability and continued engagement will be crucial in the implementation, further development, and success of this Consolidated Plan.

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

With new developments in technologies, funding opportunities, and challenges, every effort will be made to take advantage of the best opportunities available to green our fleet, while meeting the operational needs of the City Divisions, Agencies, and Corporations, and maintaining economic viability.

4.3 Monitoring and Reporting

Consistent review and updating of the Consolidated Plan to reflect changing conditions and identify new actions for implementation is critical. Monitoring implementation of the Consolidated Plan shows changes over time and helps identify what is working, and what can be improved, and whether actions are having the desired impact of helping achieve the Consolidated Plan's goal.

The Green Fleet Team, a working-group of the Fleet Management Steering Committee, will be established as part of this 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, including directional changes as required, subject to review and approval by the Fleets.

Progress reports will be created in Q2 2016, Q2 2017, and Q2 2018. These progress reports will include developments and results of strategy implementation, by discussing the status, trends, and rates 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 this Consolidated Plan, a final report will be created in Q2 2019. It will provide the final progress report for the implementation of the strategies outlined in this Plan measured against the indicators and targets.

4.4 Financial Implications of Consolidated Green Fleet Plan Initiatives

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 financial impacts of the City of Toronto Consolidated Green Fleet Plan 2014-2018 for Centrally-Managed Fleet is described in Sections 5 of this document.


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5. City of Toronto Centrally-Managed Fleet

5.1 Fleet Facts

The City of Toronto Centrally-Managed Fleet is managed by the Fleet Services Division (FSD). FSD purchases, manages, and maintains a fleet of approximately 5, 200 vehicles and pieces of equipment.

Approximately 43 per cent of Toronto's Centrally-Managed Fleet is made up of light-duty vehicles including cars, pickup trucks, vans and SUVs. Medium-duty vehicles account for 11 per cent, and various pieces of equipment account for 27 per cent. The Centrally-Managed Fleet also includes a large number of heavy-duty vehicles which account for 19 per cent of the total.

These vehicles are significant contributors to emissions of CACs. Of particular note are the NO_x emissions that are heavily concentrated in the class 8 heavy-duty trucks (ICF International, 2007).

From City operations, the fleet is also the predominant source of VOC emissions. Vehicular emissions are estimated to be more than seven times the emissions from natural gas used in City facilities. The emissions of VOCs are heavily concentrated in the fleet of passenger vehicles, vans, and pickup trucks powered by gasoline (ICF International, 2007).

The majority of the vehicles managed by FSD are used by Municipal Licensing and Standards, Parks, Forestry and Recreation, Solid Waste Management Services, Toronto Water, and Transportation Services.

FSD also oversees 40 City fuel sites, 18 of which are directly managed.

5.2 Existing Green Fleet

The City's Centrally-Managed Fleet currently has a variety of green fleet initiatives for vehicles and fuels, and is promoting sustainable fleet-related choices and green maintenance and management practices.

The City's Centrally-Managed Fleet has a wide variety of green vehicles across all vehicle classes, both on-road and off-road. As of the end of 2013, the City's Centrally-Managed Fleet included 626 green vehicles and pieces of equipment, representing approximately 12 per cent of the total number of vehicles and equipment in the Centrally-Managed Fleet. These include gasoline-electric hybrid vehicles, ultra fuel-efficient vehicles, alternative fuel vehicles, and conventional vehicles with fuel-conserving technologies.


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5.3 Additional Green Fleet Plan 2014-2018 Initiatives

Initiative 1: Fleet Services Division will, in consultation with the other Fleets, coordinate the implementation of the Consolidated Plan, track the progress made in achieving the established targets, and report back to Government Management Committee in Q2 2016, Q2 2017, Q2 2018, and providing a final report in Q2 2019;

Initiative 2: 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;

5.4 Financial Implications of Green Fleet Plan Initiatives

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 consisting of $606,000 in 2014 and $250,000 in years 2015 through to 2018.

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), and ISO certification and follow-up audits ($95,000). The requested funding will be included in the 2015 Fleet Services Operating Budget

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

Forecast	Capital Cost	Operating Cost	Total Cost	Cost Savings	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)
Total	$500,000	$519,000	$1,019,000	$1,072,000	($53,000)