



REPORT FOR ACTION

Status Update of Biodiesel Strategy for the City of Toronto

Date: March 8, 2019
To: Infrastructure and Environment Committee
From: General Manager, Fleet Services Division
Wards: All

SUMMARY

This report responds to the City Council direction (April 24, 2018), that the General Manager of Fleet Services Division (FSD) report to the Infrastructure and Environment Committee (formerly Parks and Environment Committee) with recommendations on the plan for the City to move forward with a comprehensive biodiesel strategy.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.PE26.5>

The purpose of this report is to provide an update to the Infrastructure and Environment Committee on the steps being taken to assess the feasibility of expanded bio-based diesel use in the City's Fleet operations.

RECOMMENDATIONS

The General Manager, Fleet Services Division recommends that:

1. Infrastructure and Environment Committee receive this report for information.

FINANCIAL IMPACT

There is no immediate financial impact to the City resulting from this report.

The Chief Financial Officer & Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

At its meeting on June 26, 27, 28 and 29, 2018, City Council authorized creation of a new capital project named "Biodiesel Pilot Project" with total project cost of \$198,400, and cash flows of \$131,700 in 2018 and \$66,700 in 2019, with 2019 costs to be funded from the Vehicle and Equipment Reserve (XQ0003).

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.EX35.31>

At its meeting on April 24, 25, 26 and 27, 2018, City Council directed the General Manager of Fleet Services Division to conduct a biodiesel pilot project, to consult with the Chief Financial Officer in identifying the source of funds for the pilot projects, and to report to the Parks and Environment Committee (now Infrastructure and Environment Committee) in the first quarter of 2019 with recommendations on the plan for the City to move forward with a comprehensive biodiesel strategy.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.PE26.5>

At its meeting January 31 and February 1, 2018, City Council directed the Director, Fleet Services, and the Chief Purchasing Officer to report to the Parks and Environment Committee (now Infrastructure and Environment Committee) prior to the issuance of the next Request for Proposals, with information regarding proposed criteria for any future tender on biodiesel for the City of Toronto's fleet.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.PE24.4>

At its meeting on July 4, 5, 6 and 7, 2017, City Council adopted TransformTO: Climate Action for a Healthy, Equitable and Prosperous Toronto, which included the target to transition 45 percent of the City-owned fleet to low-carbon vehicles by 2030.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PE19.4>

COMMENTS

The road transportation sector is a major emitter of greenhouse gases (GHG), responsible for 41% of Toronto's GHG emissions according to the City's 2013 GHG inventory. The City of Toronto fleet operations consume approximately 102 million litres of diesel fuel annually, of which 90% is used in Toronto Transit Commission's (TTC) buses.

As detailed in the TransformTO plan, the City of Toronto has a commitment to reducing GHG emissions and improving air quality in Toronto. City Fleets, as a function of the City's Green Fleet Plan, are selecting vehicles, equipment, fuels, and practices that emit less GHG and air pollution, are sustainable and economically viable, while meeting City Fleets' operational requirements. The Plan achievements were one of the key contributing factors to the City's overall environmental achievements, which have been recognized for their successes, as well as examples of effective local leadership on climate change.

Fuel options available in the market place are an integral part of fleet total cost of ownership selection criteria, along with purchase price, maintenance and repair cost, fuel cost, salvage value, and operational viability.

Some of the key contributing factors to the overall achievements of the City's Green Fleet Plan are associated with the replacement of diesel vehicles with alternative fuel vehicles:

- The Toronto Transit Commission's (TTC) bus procurement program no longer includes conventional mechanical drive propulsion. The last exclusively diesel engine bus procurement was in 2017.

- In addition to the purchase of a small fleet of battery electric buses, TTC is currently purchasing diesel-electric hybrid buses as the primary low emission City bus model to replace standard diesel buses as they're retired.
- TTC intends to procure the best available propulsion technology to support the greening of the City's fleet. This will include diesel-electric hybrid buses, and battery-powered buses once the viability of this technology is demonstrated in the bus fleet.
- Heavy duty garbage collection diesel trucks are being replaced by Compressed Natural Gas (CNG) trucks (120 CNG trucks in fleet as of January 31, 2019 - 48% of all collection units).

As part of our continuous review of available green technologies and alternative fuels, and in response to PE17.6 "Opportunity to Reduce Greenhouse Gas Emissions with Biodiesel", the University of Toronto was engaged by City of Toronto Fleet Services Division to study both the feasibility and expected environmental impact of switching to the use of higher bio-based diesel blends in City owned fleet.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PE17.6>

The University of Toronto Transportation Research Institute has an internationally recognized team of researchers with vast experience in the analysis, planning and design of urban transportation systems. Their expertise covers roads, transit, freight and active transport modes across a range of disciplines. They have extensive experience with comprehensive, system-wide, evidence-based policy analysis and decision support, leading to successful implementations and operations.

In summary, the University of Toronto study indicates that using bio-based diesel fuels would reduce GHG emissions, with little harm and more likely some benefits for air quality. From a technical standpoint, the expert study recommends that B5 should be used in winter, higher blends such as B10 in spring and fall, and B20 in summer. However, practical considerations such as the cost associated with the implementation of these recommendations must be taken into account.

Internally, FSD has undertaken a pilot project to test and evaluate the use of biodiesel on a small group of existing vehicles for 12 months (July 2018 - June 2019). During the warm weather, B20 was used, whereas B10 is being used in the cold weather. The existing fuel supply contract allows the City to use these biodiesel blends at incremental costs of 6 cents per litre and 3 cents per litre, respectively. Other costs for fuel site upgrade and vehicle maintenance were addressed in the report "Biodiesel Pilot Funding Requirements" (<https://www.toronto.ca/legdocs/mmis/2018/ex/bgrd/backgroundfile-115743.pdf>).

Pilot project biodiesel data as at the end of January 2019 is as follows:

- B10 consumption - 39,107 litres;
- B20 consumption - 101,098 litres;
- During the use of B10 in colder weather, some users reported fuel filter plugging problems at the pump or engine, due to the solvent or gelling properties of the biodiesel fuel. Filter replacements were required to resolve these problems.

City staff are currently developing a new fuel supply procurement document with preliminary data from the Pilot Project, and the completed University of Toronto study, as well as information from the supply market. The results of the RFP are expected in the third quarter of 2019 and will be presented to the General Government and Licensing Committee for award.

As part of the ongoing commitment to green technologies, that are environmentally, economically and operationally viable and sustainable, Fleet Services Division, in cooperation with other City Fleets, will incorporate the findings and recommendations associated with alternative fuels, including the bio-based diesel, into the City's new Green Fleet Plan, to be presented in the third quarter of 2019.

CONTACT

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SIGNATURE

Lloyd Brierley,
General Manager, Fleet Services Division

ATTACHMENTS

Attachment 1: Evaluation of the Impact of Using Biodiesel and Renewable Diesel to Reduce Greenhouse Gas Emissions in City of Toronto's Fleet Vehicles, Final Report (January 22, 2019)