



## STAFF REPORT ACTION REQUIRED

### Improving the Accuracy of Vehicle Meter Data

<b>Date:</b>	October 25, 2013
<b>To:</b>	Government Management Committee
<b>From:</b>	Director of Fleet Services
<b>Wards:</b>	All
<b>Reference Number:</b>	P:\2013\Internal Services\Fleet\GM13003Fleet – (AFS18007)

#### **SUMMARY**

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This staff report responds to the Auditor General's Report titled, 'Reliable Data is Needed for Effective Fleet Management' dated April 18, 2013. The Auditor General's Report included a requirement for the Director of Fleet Services to report to Government Management Committee by December 31, 2013 on steps that can be implemented to significantly improve the accuracy of vehicle odometer readings including any revisions necessary to odometer reading criteria for identifying unusual meter readings.

Staff investigated several options to improve odometer accuracy over the last six months. The best option should be cost effective, eliminate manual inputting, build on current information systems and strengthen controls at the fuel pump. The only option meeting all these criteria was an automated odometer download solution included in the current Fleet Management Information System (FMIS) software. Subsequently, Fleet initiated an automated odometer download pilot at the city's fuel site located at 1026 Finch Avenue West, in August 2013. Feedback from the drivers has been positive so far and the odometer data is accurate because it is transmitted in real-time from the vehicle's onboard computer to the FMIS. If the pilot project is successful, Fleet Services plans to implement the automated odometer download capabilities at seventeen (17) fuel sites.

Further to the Auditor General's recommendations, staff are also reviewing the odometer reading criteria used in the FMIS and will amend and adjust them as necessary.

Included in this staff report are three (3) recommendations to rollout the automated odometer solution to nine (9) fuel sites and 3,500 vehicles and pieces of equipment between 2013 – 2016 at an estimated cost of \$1.7 million.

## **RECOMMENDATIONS**

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The Director of Fleet Services recommends that:

1. City Council request the Director, Fleet Services to implement a Monthly Odometer Submission process on a pilot basis with the division(s) for units not being captured by the Automated Odometer Download solution.
2. City Council request the Director, Fleet Services to report the results of the Automated Odometer Download solution to the Government Management Committee by the end of the second quarter of 2015.

### **Financial Impact**

The 2014 Fleet Capital Budget submission includes a request for \$0.300 million. The \$0.300 million will be funded through the Fleet Services Corporate Vehicle Replacement Reserve XQ003, subject to Council approval in the 2014 budget process. The request will provide required funding for full implementation of the pilot, in addition to the \$0.050 million spent in 2013 to initiate the project.

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

### **DECISION HISTORY**

The Audit Committee adopted item # AU11.7 with amendments on May 29, 2013. City Council adopted this item without amendments on June 11, 2013.

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

### **ISSUE BACKGROUND**

Odometer and hour meter (used in heavy equipment and vehicles) data is important to effective fleet management because the information is used for maintenance scheduling, utilization monitoring and replacement planning. The accuracy of this data has suffered over the years because of an older fuel information system and manual inputting which is prone to errors. For example when a driver takes a city vehicle to a city yard for fuel, he manually inputs the odometer reading to activate the fuel pump. While there are system checks to ensure "reasonableness" with the inputting, errors have been discovered by staff and the Auditor General.

## COMMENTS

Fleet Services investigated several options that could be implemented to improve odometer accuracy including an ongoing review of odometer reading criteria used in the FMIS. The best option should be cost effective, eliminate manual inputting, build on current information systems and strengthen controls at the fuel pump. The only option meeting all these criteria was a fully integrated module that provided an automated odometer download solution included in the FMIS called Fuel Focus.

The automated download solution works seamlessly because as the driver approaches the fuel island, the onboard black box talks to the FMIS system in real-time to verify the unit number, fuel type and tank capacity. These checks strengthen security at the fuel pump because it will not activate without verification. In addition, odometer data is transmitted wirelessly and eliminates manual inputting completely.

Last and equally important, this solution was cost effective in terms of all the features provided (Table 2). Subsequently, Fleet initiated the automated odometer download pilot at the city's fuel site located at 1026 Finch Avenue West in August 2013. By the end of Q2 2015, there should be sufficient data to evaluate a 300-vehicle pilot and report back to the Government Management Committee on the results of this initiative. If the pilot project is successful, Fleet Services will at that time, seek authority to proceed with full implementation as described below.

The automated odometer download solution will be installed at a minimum of seventeen (17) fuel sites by the end of 2016 (Table 1). This will include nine (9) Super Sites that operate 24 X 7 and will require upgrading to the automated odometer download module. In addition, another eight (8) sites will be retrofitted with the automated odometer download module as part of their upgrade to Super Sites. Since these eight (8) sites are being upgraded anyway, the automated download module is considered to be cost-neutral as shown in Table 1.

Table 1 – Target Number of Automated Download Sites, Pending Successful Pilot

Type of fuel site upgrade	Number of sites
Pilot upgrade of Super Site to automated odometer download module	3
Upgrade of remaining Super Sites to automated odometer download module	6
Cost-neutral upgrade of older site to automated odometer download module as part of existing site upgrades	8
Total	17

Projected costs to rollout the Automated Odometer Download solution across approximately 3,500 units and nine (9) fuel sites is estimated at \$1.7 million as shown in Table 2.

Table 2 – Automated Odometer Solution Rollout (2013 – 16)

Items	\$ Price/unit	Quantity	Total \$
<b>Capital Cost</b>			
Fuel Island Hardware/Software	37,500	9	337,500
Vehicle Hardware	250	3,500	875,000
Installation tools	6,700	5	33,500
Key FOBs	7	3,500	24,500
Cabling and accessories	23,000	1	23,000
Training	10,000	1	10,000
System maintenance	1,000	9	9,000
Staff (1 FTE)	140,000	3 yrs	420,000
<b>Total Capital Cost</b>			<b>\$1,712,500</b>
<b>Operating Cost</b>			
Annual system maintenance	1,000	17	17,000
<b>Total Operating Cost</b>			<b>\$17,000</b>

As described above, adding the automated odometer download module to eight (8) sites is considered cost-neutral because the new fuel system software costs are similar to what is being replaced. In addition, existing underground fuel tanks that are at or near the end of their life expectancy are replaced with above ground tanks that are double walled and include leak detection monitoring. As Fleet Services upgrades and retrofits older fuel sites to Super Sites, hardware/software replacements are a required aspect of the upgrade process.

With seventeen (17) fuel sites having automated odometer capture capability over the next four years, Fleet Services estimates that over 80% of the city's units will have their meter readings captured automatically. For the remaining less than 20% of the units, manual recording/inputting will be required as described below.

Future Savings

Based on current methods, establishing an equivalent level of fuel security and data integrity would be predominantly manual and time consuming. Additional effort would be required to develop and review monthly exception reports and manually input records and corrections for both fuel management and meter readings. Based on touch-time analysis, conservative estimates indicate that the average FTE (Full Time Equivalent) requirements in each user Division would be approximately 0.3 FTE. The requirements in Fleet Services to manage and administer the required processes for each would equate to 1.0 additional FTE. With 24 user Divisions and ABC's, this equates to a requirement for over 7.0 FTE. Through automating both these processes, no additional FTE would be required. If the pilot proves successful, in addition to increased data integrity and fuel security through automation, this would result in a future savings and full project cost recovery in just over 5.0 years.

## Other solutions considered

Some fleet operators and vehicle leasing companies require drivers to submit their odometer information on a regular basis (e.g. monthly) either electronically or using paper forms. This method works best when a vehicle is assigned to a limited number of drivers. The shortcoming of this method is that it still relies on manual inputting on the driver's part. In terms of workflow with this option, a large volume of data would be transmitted and consequently a dedicated information system and process would have to be developed to receive the data. This would be an additional demand on staff resources.

At best, this approach would have to be considered an interim measure to capture odometer data not included by the automated odometer download solution described above. The Director of Fleet Services recommends that a pilot be initiated with the full support and cooperation of the division(s) to record meter data for city vehicles and equipment not using the automated download equipped fuel sites.

At the present time, many operating divisions at the city are using Automated Vehicle Locator (AVL) devices to track location and operational data on approximately five hundred (500) city units. The city's contracted vendor (InterFleet Inc.) has a product that estimates the odometer reading based on route travelled and uploads the information wirelessly using the cellular network each time the vehicle location is transmitted. Similar AVL products can provide this information but the real strength with this technology is the use of Global Positioning System (GPS) to determine asset location and transmit operational functions such as plow up/down, rate of salt spread, etc. Unfortunately, this solution cannot be used to improve controls at the fuel pump and airtime costs (cellular) are an ongoing expense. The automated download solution does not require airtime costs.

## **CONCLUSION**

Based on the options available, Fleet Services has concluded that the best option to significantly improve vehicle odometer data and improve controls related to fuel is the automated odometer download solution included in the FMIS and corresponding Fuel Focus software. If the pilot project is successful, the cost to rollout the solution to nine (9) fuel sites and 3,500 vehicles and pieces of equipment between 2013 – 2016 is estimated at \$1.7 million. It is anticipated that an additional eight (8) fuel sites can be upgraded without additional cost, bringing the total number of fuel sites with automated odometer download capability to seventeen (17).

## **CONTACT**

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