An alternative to traditional bureaucratic fleet management

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Yvan Lupien is the Chief Operating Officer of the Winnipeg Fleet Management Agency (WFMA). Created in 2003, WFMA has a staff of 106, an annual operating budget of CAN$26m and manages a fleet of some 1,600 vehicles. Yvan holds a bachelor’s degree in Canadian studies from the Royal Military College of Canada, a master’s degree in business administration from the Richard Ivey School of Business, and a master’s degree in public administration from the University of Manitoba. He is also a Member of the UK Chartered Institute of Logistics & Transport.

ABSTRACT
In response to continuing municipal budget restraints, the City of Winnipeg implemented a new type of organisation — the Special Operating Agency. One of these agencies, the Winnipeg Fleet Management Agency, has since significantly reduced the number of vehicles required to support City operations, decreased the average age of each vehicle, incorporated detailed lifecycle costing for all decision making, and fostered external streams of income — all for almost half of what it cost to run the department only five years ago.

Keywords: fleet management, reduce number of vehicles, average age of vehicle, lifecycle cost-

ING, special operating agency, reduce operating budget

INTRODUCTION
Many citizens around the world view their civic government as an organisation that spends large amounts of tax dollars for standard and often delayed services. Winnipeg (Manitoba, Canada) was no different and throughout the years a number of studies were undertaken and attempts made at reducing costs and improving efficiencies. A breakthrough came in 1997, when the City of Winnipeg Council published a document entitled ‘Reshaping our Civic Government’,¹ which outlined a plan to set the stage for eliminating the city’s business taxes. One of the key strategic initiatives outlined in the document detailed the creation of Special Operating Agencies (SOAs).

The fundamental idea behind the SOA concept is to shed traditional bureaucratic processes, operate in a businesslike and transparent manner, give managers the power to make rational and timely decisions, and allocate resources efficiently. In return, customers (other civic departments) are shown all of their costs, and if the service they receive from the SOA is not below average local market rates they can put forth a case to purchase directly from local business. The bottom line for the
SOA is to be cost-competitive for quality services and provide overall improved value to the City.

THE PLAN
On 1st January, 2003, the City of Winnipeg created the Winnipeg Fleet Management Agency (WFMA) — reporting to the City Chief Administration Officer, and under the direct leadership of Chief Operating Officer Yvan Lupien. WFMA was tasked with achieving these SOA goals for the City's vehicle and equipment fleet. WFMA would have to find an efficient way to reduce the size of the fleet, lower costs and downtime while ensuring the City could still provide the same services with fewer vehicles.

This creation was the culmination of years of preparations. According to the City of Winnipeg’s audited Detailed Financial Statements for 1998, the City's vehicle fleet was estimated at approximately 2,800 vehicles (excluding transit, police and fire units) when plans to create the fleet management SOA began in earnest.\(^2\) By 2000, the Equipment Material Services Branch was costing the City CAN$42m and supporting 2,431 vehicles. Of these, 399 were trailers and 38 were fogger units, which were reassigned to the respective users.

By the inception of WFMA in 2003, 1,323 of these original vehicles were left. By 2007, the agency added new clients, most importantly the fire and police departments, and it had a budget of just under CAN$26m (Figure 1).\(^3\) This is the result of streamlining operations and having departments carry fewer spare units, if any. At the same time, WFMA is providing a larger spectrum of services than it did just a few years ago.

One of the major changes brought by the SOA is a new method of financing equipment purchase. In the past, each department paid into an equipment replacement reserve fund and dipped into this fund for any new equipment purchases. The problem with this method, however, was that a large amount of funds accumulated in the replacement reserve and it became difficult to maintain contribution

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*Figure 1: Fleet operating budget for the City of Winnipeg (excluding fuel sales)*

![Operating Budget Graph](image)

Source: City of Winnipeg Annual Report Financials, 2001–2002
to the fund when the City was borrowing money to support current city operations. As a result, it left departments short on capital when it came time to replace worn-out equipment.

The WFMA business model revolves around the concept of financing the purchase of units through bank loans and then leasing these units out to city departments for a fixed monthly cost over a fixed amount of time. The optimal age of a fleet vehicle is predictable and WFMA bases its lease rates around this timeframe. When the optimal life for a particular unit is determined, the capital lease rate and operating lease rate are both calculated.

The capital lease rate is essentially the purchase price minus the expected resale value, plus financing interest divided by the number of months in the unit’s optimal lifespan. There are no surprises here and rates are very transparent and easy to accept for all customers.

The operating lease rate is of course more complicated and ideally has to consider such items as the work to be carried out by the unit, the estimated usage of the unit, the working conditions, the regular preventative maintenance schedule as recommended by the manufacturer or as learned by historical data, predictive maintenance as recommended by the manufacturer or as learned by historical data, unique unit attachments, consumables, unpredictable maintenance (i.e. damage), potential future upgrades, fuel, and finally a percentage of revenue. As all of these variables are a must when considering what to charge as a monthly rate for a unit, there are a number of ways to come up with a final figure. WFMA’s goal was to charge a rate for each unit that was as close as possible to what the actual charges for that unit would be once its lifecycle was complete. To obtain this cost, WFMA chose to omit unique unit attachments, consumables, damage and potential future upgrades for the operating lease calculations. These costs were instead either given a separate operating lease (in the case of an attachment that required regular maintenance), or billed as a separate charge based on occurrences. By structuring costs this way, each customer is given a fair starting point from which to budget and their final unit costs are largely up to themselves and their operators. Unlike some fleet operations, WFMA does not provide any equipment drivers/operators as this is a function of the individual city departments.

The optimal equipment age for light and heavy fleet vary according to a number of factors including expected residual value, operating conditions, expected

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<th>Life cycle</th>
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yearly usage, warranty coverage period, predictable downtime and maintenance costs. Within WFMA’s fleet, the optimal equipment age for light fleet is generally calculated as seven years (although numerous exceptions exist). The optimal age for heavy fleet varies greatly from one piece of equipment to another and within WFMA can vary from four to 15 years. To better understand the overall general health of a fleet it is useful to look at its average age (Figures 3 and 4).

With worn-out equipment came escalating repair costs, mounting downtime and even less money to purchase the badly-needed replacement units. The only way to break free of this spiralling decline was to charge the whole business model. WFMA’s new business model was simple and more importantly, sustainable — financing the purchase of new equipment through negotiated loans with the banking industry, leasing this equipment back to the customer, and charging a steady and
predictable capital lease rate and operating lease rate amortised over the life of the unit. When downtime increases and the regularly forecasted maintenance costs begin to mount beyond a point of profitability, the unit is readied for auction and the recovered money is reinvested back into the fleet. This point in time is the prediction made by the fleet manager when determining the optimal life of the unit.

Money is collected against future anticipated repair costs throughout the lifecycle of the unit, even when the unit is new and under warranty (usually three years or longer if extended warranties are available). Repair costs begin to climb when the warranty expires and the collection of funds from the monthly operating lease rate is accessed to begin covering these costs. Soon, repair items, such as transmissions, suspensions and structural items, require attention. This is where the repair costs begin to exceed the monthly operating lease rate; however, the customer is unaffected because the previously accumulated funds are used to cover the higher repair costs and the budget planned by the customer remains intact. WFMA assumes the risk of the repair costs and thus benefits if the optimum life was calculated correctly or bears the financial loss if the optimum was off. There will always be units that fall outside of the bell curve, but if the majority remain within, the programme is successful for everyone involved.

As discussed previously, the only costs not covered under the lease rates are damage, consumables and fuel, which are more dependent on the operator and the department's particular operating environment. Keeping damages and consumables separate from the operating lease rate also helps to keep departmental costs more accurately distributed. If one department uses its backhoe for light seasonal work, while another uses the same model for intensive year-round work, they both pay a similar monthly operating lease rate but the harder-used backhoe will pay more in non-routine repairs to the unit (ie damage and consumables). Being structured this way helps to ensure lightly-used or well cared-for units do not subsidise heavily-used or poorly cared-for units. This in turn allows each department or customer to pay a fair price for the equipment they have and the work they perform with their machines. If a department surpasses
its budget substantially, it will usually be due to factors within its own control, and therefore, correctable.

Economies of scale are also factored into the WFMA business model — saving money by dealing in volume and reducing redundant systems. Rather than have three different departments make three separate tenders for the same type of equipment, the effort is coordinated and rolled into one whenever possible. Providing this type of coordination not only encourages a better price for equipment, but also reduces the cost of having multiple fleet managers, spec writers, equipment inspectors, etc in each department. WFMA provides these services for each department, meaning that the work is done by an expert in the field, rather than a jack-of-all-trades nested in each department.

When one begins dealing in volume and becomes an expert in one’s field, there is no reason why one’s services should be restricted to one’s traditional customers only. WFMA continues to look for ways to lower costs further, and one way of doing this has been to sell its services outside the City of Winnipeg. The more units WFMA purchases, the better the unit price becomes, and other local municipalities have been quick to recognise this opportunity. WFMA can combine smaller municipality equipment purchases with its own — saving the municipality up to thousands of dollars on a unit, thus saving the City of Winnipeg taxpayer even more money.

Similar to equipment purchases, the fuel required to run the City’s fleet is subject to economies of scale. WFMA has to buy a large quantity of fuel each month to keep the fleet running — more than some smaller government sector organisations within the City that buy fuel on a much smaller scale. WFMA allows these organisations to take advantage of its lower fuel prices, which again adds to the total volume of fuel purchased and decreases the cost per litre of that fuel.

The City of Winnipeg and WFMA are currently consolidating and upgrading fuel sites throughout the city. With many below-ground fuel tanks more than 30 years old, the time has come to upgrade. As was achieved with vehicles and repair facilities, WFMA plans to reduce the number of fuel sites in the city. The loca-

Figure 5: Fuel sold to other tax-funded organisations
tion of each fuel site will be reviewed and upgrades completed on those where it makes sense to do so. Under the current infrastructure, there are 29 fuelling sites around the city—a number of which are only minutes away from each other. WFMA is currently planning to reduce the number of fuelling sites to eight sites strategically located within the city. Some of the older sites are also run on an 'honour' system, where the operator draws the fuel they need and simply logs the transaction in a book. This antiquated system is not only labour-intensive to manage but is also open to fraud and slippage. WFMA currently has a cardkey system for most fuel sites and with the consolidation of fuel sites, a new system using wireless radio frequency identification/authorisation will be put into place. This new system will ensure only authorised units can be fuelled, automatically collect odometer readings at each fuelling and upload valuable vehicle sensor information such as idling time and engine trouble sensor warnings.

Because the City Council was the driving force behind the creation of WFMA it would also continue to be involved in the ongoing operations of WFMA. Council members sit on the governing board that guides the agency and meet regularly to monitor progress, pursue new mandates and support strategic initiatives. Without the Council's direct support, WFMA would not have been able to function as envisioned and would almost certainly become entangled in the bureaucratic red tape it was designed to avoid.

THE OBSTACLES
It is not easy to change from bureaucracy to business overnight. Lupien's concept was simple and direct—to build on the core strengths and employ outside resources to handle the areas where it made sense to do so. The first step was to begin building a cohesive team where communication was easily facilitated. Before becoming an SOA, the fleet administration and mechanics were dispersed throughout the city, making it very difficult to interact or work towards any common goal. To become effective, WFMA effectively had to 'regroup'; this meant pulling management and administration together under one roof and consolidating mechanical resources into a limited number of physical locations. Repair facilities had to be strategically placed to continue providing accessible service to customers, while at the same time working towards eliminating non-essential overhead and operating costs. Ideally, customers would prefer a maintenance facility in every backyard. While this might save individual departments money by cutting travel time, overall, it increases the cost to the City. The strategic initiative chosen by WFMA was to consolidate all major maintenance operations (there are currently two major repair facilities), limit the number of temporary satellite facilities (there is currently one) and utilise WFMA operated mobile service trucks or vendor services to provide the remaining coverage.

The next step was to build a concrete base of factual data: what were the purchase costs, how much money was being spent on maintenance/damage/routine repairs/consumables, and when exactly did it make financial sense to replace a particular unit? The historic collection of such information had been sketchy at best and at times non-existent. Careful and thorough research ultimately led to the purchase of the low-cost but effective RTA Fleet Management Software system. Originally designed for the globally successful company, United Parcel Service, RTA was the answer to WFMA's factual data question. Costing many thousands of dollars less than competing systems, RTA has been put through the paces and has come
out a winner. All costs are captured and manipulated to provide WFMA with the information it needs to know what its fleet is up to, such as what parts are failing repeatedly, which types of equipment are performing well and how much is it all costing. Based on this information, sound business decisions can be made. Because this information was not kept in any central database and sometimes not recorded at all before 2003, the first years as an SOA have required the building of a useful set of data. After five years of collecting data, WFMA is now arriving at the point where instead of depending on manufacturer's recommendations solely, it can start seeing trends in its own data. If a manufacturer recommends a transmission rebuild at seven years and WFMA keeps the unit for more than seven years as an internal rental, it is possible to compare those units that have the work done and those units that do not. Whether or not it pays to have the work done can now be answered based on the vital first-hand experience of running vehicles in specific operating conditions, rather than the manufacturer's estimated conditions.

The final piece to the puzzle was a common one — the human factor. How does one change a culture overnight that has been decades in the making? Certain members of the City-wide organisation were not interested in change and certainly not eager to sail through uncharted waters. It was also difficult for a civic organisation to watch one of them run with a different charter. To overcome this obstacle, WFMA has had to explain its different procedures and policies on countless occasions, depending greatly on the transparency of its operations and, arguably just as important, having the right people on board. Ultimately, it is people who work with people, and putting the right human resources in place to build lasting relationships is something that WFMA does well.

In the past, it was the repair facility foreman who directed the work on the floor, supervised staff, performed mechanically-related shop administration and dealt with customers. Recognising the vast importance of all of these functions, WFMA created a new position of quality coordinator to handle the customer relationship function and a large majority of the shop administrative functions. The idea behind this change was to give the foreman the ability to focus solely on running the maintenance and repair functions of the shop, while providing a resource mainly dedicated to the customer.

Quality coordinators were mainly found within the organisation from the current body of mechanical staff. Hiring from within for this position accomplished four important goals: (1) the quality coordinators were already familiar with their customers and their equipment needs; (2) each quality coordinator was a trained heavy-duty mechanic, which gave them the knowledge to make important decisions, such as scheduling, where it is most important — at the front desk — where the customer deals with the organisation; (3) by promoting from within, staff now had additional potential for promotion, greater career development, and the organisation as a whole did not grow in staffing; and (4) as maintenance requirements decreased, rather than mechanical staff being laid off, they could advance within the organisation, thus avoiding any negative effect on morale.

Other positions necessary to the expertise and efficiency of the operation did come from outside of the organisation. When WFMA did not have an in-house expert or the manpower available, it sometimes made sense to look externally. The additional salary of an experienced professional can often pay for itself many times over when compared with the cost of 'trial by error' when learning to do it internally.
RESULTS
The SOA concept works when there is commitment from above the organisation, within the organisation and around the organisation. A city can save money via a lower fleet operating budget achieved through centralised fleet administration and lifecycle cost management.

WFMA has shown that purchasing vehicles for the City and in turn leasing them back to other departments at a fixed monthly cost is not only sustainable but also provides a newer fleet, resulting in decreased downtime. In turn, the decreased downtime leads to a decrease in the number of units required to provide the same level of service.

Lifecycle cost management reduces unknown factors and provides a basis for making future decisions. By examining a vehicle’s past, one can make reasonable predictions about the future and budget accordingly. By factoring aspects of lifecycle cost management into the purchasing process, one can also make better acquisitions that take into account more than just the purchase price or resale value of a vehicle — lifecycle cost management helps take the entire life cost of a vehicle into consideration when making purchases.

To compete with the private sector, one must operate like the private sector. WFMA therefore tracks all costs, monitors costs and customer pricing, hires professional staff, requires managers and staff to achieve industry certifications, and, importantly, operates in an environment of reduced bureaucracy. The private sector does not have layers of red tape preventing it from achieving economies of scale or leveraging leading technology to achieve efficiencies and neither can a civic organisation if it is going to compete on a level playing field.

Success is not achieved overnight — it is something to aim for and continue working towards each day. It takes time to set up the proper infrastructure to service customers efficiently, collect clean data, analyse findings, adjust past predictions and make new ones for the future. Cultures also take time to change, and it is better to convince with facts than to battle subjectively. Tracking what one does, why it is done and having the facts to back it up are invaluable tools to succeeding as a Special Operating Agency.

CONCLUSION
The days of the lowest-priced bidder exclusively winning the tender are a thing of the past for the City of Winnipeg. Currently, WFMA utilises a more sophisticated tender system, sometimes referred to as ‘design-based’ specification writing, which is primarily based on engineering design. These specifications are designed to maximise quality by eliminating undesirable competitors that cannot meet high performance. This direction allows WFMA to set a higher benchmark of equipment acquisition and disposal.

In conjunction with lifecycle cost management, design-based specifications are truly able to measure the cost of ownership throughout the life of the equipment, from birth to death. Some of the items factored into WFMA’s equipment tenders include:

- initial purchase price;
- fuel consumption rates;
- parts and labour costs;
- downtime experience with previous units;
- operational performance;
- efficiency;
- ergonomics/visibility/ease of operation;
- warranty performance;
- vendor performance;
- operator safety;
- application versatility;
- field testing;
- residual value;
- technology benefits (feature, function, benefits).
Together, these provide customers with the benefit of the right piece of equipment and ensure that taxpayers get the best value for their tax dollar.

As an example, the fuel consumption economic analysis formula used to evaluate bids for a 2008 pick-up truck extended cab 4 × 4 LT would be calculated as follows:

- **Unit price:** CAN$33,000.00
- **Residual value (5 years/100,000 km):** CAN$18,500.00
- **Fuel consumption:** 15.0 litres/100 km (city)
- **Fuel cost:** CAN$1.00/litre
- **Quantity (units):** 5

Thus: 

\[
((\text{CAN$33,000} - \text{CAN$18,500}) + (15.0 \times 100,000 / 100 \times 1.00)) \times 5 = \text{CAN$147,500}
\]

Another example is the point system economic analysis used to give weight to numbers in a tender. Award of the contract is influenced by a number of factors, with each factor representing a specified value to WFMA and its customer. Demonstrated performance, for example, is evaluated by having a formal equipment demonstration with the City equipment operators who then fill out an official rate chart for each piece of equipment. Some factors evaluated include, suitable cab size, driver ergonomics, top speed, ride comfort, etc. The operator evaluations are filled out and then collected and the average score for each factor calculated and tallied.

For example, total calculated bid price, multiplexed wiring technical evaluation and demonstrated performance might be weighted as 70 per cent, 10 per cent and 20 per cent, respectively. This might translate as follows:

- **Company A**
  - Total calculated bid price: CAN$100,000

- **Company B**
  - Total calculated bid price: CAN$90,000
  - Multiplexed wiring technical evaluation: 7/10 pts
  - Demonstrated performance: 19/20 pts
  
  \[
  = (90,000 / 100,000) \times 0.7 \times 100 = 63 \\
  + 7 + 19 = 89
  \]

- **Company C**
  - Total calculated bid price: CAN$110,000
  - Multiplexed wiring technical evaluation: 6/10 pts
  - Demonstrated performance: 12/20 pts
  
  \[
  = (90,000 / 90,000) \times 0.7 \times 100 = 70 \\
  + 6 + 12 = 88
  \]

In this case, Company A achieves the highest score even though its total calculated bid price (which includes purchase price, residual value, fuel economy, lifecycle costs, etc) was CAN$10,000 more than Company B. Because the analysis incorporates a number of key factors into the purchasing process, the results normally identify the best equipment for the task at hand.

In conjunction with the City of Winnipeg’s Public Works Department, WFMA has also been awarded the prestigious American Public Works Association Accreditation, which dissects and measures all areas of a public works organisation to ensure its procedures and practices are of the highest standard. Everything from parts ordering/receiving processes to the repair shop workflow processes had to be examined to ensure low error rates and that ‘best business’ practices were in place. Going after an accreditation such as this is
a good step forward for any public works organisation or SOA as it forces one to understand what it is the organisation does, how to do it well and to shave away any inefficiencies. There are currently only 51 accredited agencies in all of North America, including that in Winnipeg, Manitoba.

WFMA is also in the final stages of investigating pre- and post-trip equipment inspection technology that will vastly improve the information received by its repair facilities regarding the condition of the fleet on the road. Gone will be the days of operators filling out paper inspections for their units. Instead, operators will use electronic devices to scan through inspections and the information will be stored and transferred to the maintenance facilities electronically. By adopting such front-line technology, WFMA will be able to intercept many costly breakdowns before they happen and also add a new level of operator and public safety by spotting potential hazards before they become a risk.

Because there is one body managing the City vehicles, it is now much easier to investigate, test and implement environmental initiatives. For example, five different departments can trial various hybrid vehicles separately and WFMA can then share the collected data among all departments using standard benchmarks. The City can then collectively invest in the best overall technology while avoiding any problematic equipment. In addition to orchestrating hybrid technology into the City fleet (there are currently 53 hybrid units in the fleet), WFMA has also been testing biodiesel operations in Canada’s extreme climate conditions. In 2007–08, B5 was operationally tested and proved successful in temperatures as low as −35°C. B10 is being tested in 2008–09, and if the tests are successful, the fuel may become standard for much of the heavy fleet. One obstacle that has been encountered in regard to bio-

diesel is the high cost of the fuel. WFMA purchases this fuel directly and dispenses from a City fuel site as it is not yet widely available on the private market. With low volumes come high costs and WFMA is currently subsidising the cost of this fuel for its customers. Regardless of the outcome, the valuable information learned by WFMA will be readily available to all City departments and costly growing pains on a large scale are being avoided.

WINNIPEG FLEET MANAGEMENT AGENCY’S FUTURE
Since becoming a Special Operating Agency and commencing operations in 2003, WFMA has transferred the following amounts in cumulated non-service related transfers back to the City of Winnipeg:*

- 2003: CAN$2,812,557
- 2004: CAN$1,820,112
- 2005: CAN$4,396,734
- 2006: CAN$9,507,656
- 2007: CAN$6,345,008
- Total: CAN$24,882,067

In addition to this, the City is now operating with a fleet of new and reliable vehicles in a manner that is not only cost-effective but sustainable in the future.

WFMA has committed to being on the leading edge of fleet initiatives without being on the bleeding edge. New technologies will continue to be tested and new partnerships formed, but always in a cost-effective and risk-managed manner that will secure long-term benefits to the organisation, a situation that should please the taxpayer. WFMA has proven that a City fleet organisation can spend less to get more and remains committed to continually improve on its performance.

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