4.4.

Management of Rolling Stock

(Service du matériel roulant et des ateliers)

March 5, 2020

2019 Annual Report
Auditor General of the Ville de Montréal


Montréal
Police
SPVM
Montréal
720

OBJECTIVE

Evaluate the extent to which the City has established an Investment Strategy (the Strategy) for the upgrading (bridging the obsolescence gap) and optimal maintenance of the vehicle and equipment fleet while meeting users' needs.

RESULTS

Since January 1, 2017, the different activities related to the life cycle of vehicles and equipment have been consolidated under the direction of a single entity, the Service du matériel roulant et des ateliers, under section 85.5 of the *Charter of Ville de Montréal*. The consolidation was designed to achieve the following objectives: to standardize vehicles, to establish a Strategy for bridging the accumulated obsolescence gap over a four-year period (2018 to 2021) while replacing vehicles that have reached the end of their service life, and to maintain the vehicle inventory in terms of numbers and value. Based on our audit work, we think that improvements should be made in the following main areas:

- The budget documents submitted to authorities make no reference to objectives expressed in measurable terms;
- There is no consistency in the vehicles and equipment inventory between the different management tools (InvFlotte, MIR, MAXIMO for the Service de police de la Ville de Montréal) or with vehicles that are actually in the field;
- Documentation supporting the different parameters of the 10-year Strategy has not been kept;
- Two years after it was approved by the director general, the Strategy has not been updated to take into account new data that has become available;
- The total investment budget is in line with what is provided for in the Strategy but compliance with the budget breakdown cannot be demonstrated;
- To date, no evaluation of the Strategy implementation has been done;
- The acquisition of vehicles to meet new needs does not always follow the official process and the Strategy;
- The timelines for commissioning vehicles and equipment are not analyzed for the purpose of taking the necessary corrective measures;
- Accountability mechanisms on the results achieved, on progress in the implementation of the Strategy, and the extent to which it has achieved the expected benefits resulting from the consolidation of rolling stock activities are not sufficient;
- Quality controls performed on data entry in the different databases are inadequate;
- With the existing replacement process, it is not possible to identify the vehicles needing to be replaced by taking into account their use, all the associated costs and their purpose.

In addition to these results, we have formulated various recommendations for the business units.

The details of these recommendations and our conclusion are outlined in our audit report, presented in the following pages.

It should be stressed that business units were given the opportunity to agree to this, and we will submit their comments later.

TABLE OF CONTENTS

LIST OF ACRONYMS

BPPI	Bureau des projets et des programmes d'immobilisations
SIM	Service de sécurité incendie de Montréal
SIMON	Système Intégré Montréal
SMRA	Service du matériel roulant et des ateliers
SPVM	Service de police de la Ville de Montréal
STI	Service des technologies de l'information
TCEP	Three-year capital expenditures program


Montréal
Montréal
720

1. BACKGROUND

The Ville de Montréal (''the City") owns a fleet of nearly 8,700 vehicles[1] and of equipment. According to an exercise carried out by the Service du matériel roulant et des ateliers (SMRA), in 2017,[2] the replacement value of the vehicle and equipment fleet, which consisted of 7,372 vehicles at that time, was estimated at $571 million.

The City's rolling stock is classified under different categories and classes. In all, there are 7 categories[3] and 305 classes of vehicles. For example, the automobile category consists of several classes, including four-door subcompact cars (class 134), and the heavy trucks category includes trucks used to clean sewers (class 309).

Under the *Charter of Ville de Montréal*, borough councils and the city council have powers related to rolling stock assigned to activities falling within their respective jurisdictions. For activities that fall under the jurisdiction of city council, the SMRA is responsible for acquiring and leasing rolling stock, for providing maintenance and repair services for heavy and light vehicles, and for the repair and production of various goods and equipment.[4]

A large number of services provided to citizens are based on the performance and reliability of the rolling stock operated by the City (e.g., snow removal, road works, infrastructure, building and park maintenance, public safety-related activities).

In 2013, as part of the development of *the Plan d'investissement à long terme 2013-2022*, it had been demonstrated that there was a delay in the investments made to maintain the age of the vehicles to the obsolescence standard expected for its fleet of vehicles and equipment. The study referred to an accumulated replacement gap of the vehicle and equipment fleet, evaluated at $76 million.

1 As of September 2019.

2 Investment Strategy for maintaining the City's vehicle and equipment fleet and meeting additional needs, produced on January 17, 2018.

3 7 categories: A) automobiles (e.g., compact car, 6-cylinder crossover); B) light trucks (nominal gross weight of less than 4,500 kg (e.g., a van, double cabin pickup truck)); C) heavy trucks (nominal gross weight of more than 4,500 kg (e.g., dump truck, fire truck with pump)); D) light tool vehicles (e.g., tractor; steamroller); E) heavy tool vehicles (e.g., wheel loader, ice resurfacing machine); F) other light equipment (e.g., sidewalk salt spreader, snowmobile); and G) other heavy equipment (e.g., theatre trailer, modular tipping bucket).

4 *By-law concerning departments 14-012* (adopted on March 24, 2014 by city council), article 1, paragraph 18.

To further improve the City's performance and efficiency in the rolling stock function, and to optimize the resources allocated, the municipal administration elected to consolidate various activities related to the life cycle of vehicles and equipment under the direction of a single entity, the SMRA. The life cycle of vehicles and equipment involves the client needs assessment, the development of technical specifications, acquisition or leasing, registration, maintenance and repairs, scrapping and disposal.

Through a resolution passed on November 21, 2016, city council declared that, under section 85.5 of the *Charter of Ville de Montréal*, all rolling stock-related powers that fall under the boroughs' responsibility, except for contracts involving leasing for less than one year and leasing with operator, came under its jurisdiction for a two-year period (from January 1, 2017, to December 31, 2018). At the end of 2018, city council approved the renewal of its jurisdiction over all rolling stock–related powers for a period of three additional years, from January 1, 2019, to December 31, 2021.

The powers that were consolidated under the direction of the SMRA are related to the following functions:

- Vehicle fleet management, including the acquisition, maintenance and repair, disposal and management of vehicles and equipment;
- Management of all machine shops on the territory;
- Operator training;
- Fuel management, including fuel consumption monitoring, management of fuel access cards;
- Administrative and operational support, including management of financial, human, material and informational resources.

In consolidating vehicle and equipment fleet management, the SMRA made it a priority to standardize the vehicles to be purchased, mainly in order to simplify the acquisition process and be able to benefit from a better price by making bulk purchases. However, it is important to ensure that this standardization meets business units' needs so that they can continue to provide services.

In January 2017, the Direction générale also mandated the SMRA and the Bureau des projets et des programmes d'immobilisations (BPPI) to conduct a study aimed at defining an Investment Strategy to bridge the accumulated replacement gap while ensuring that assets are maintained—in other words, making investments to reduce obsolescence while at the same time replacing vehicles that have reached the end of their useful life, so that they, in turn, do not fall into obsolescence. It emerged from this study that as of December 31, 2016, the accumulated replacement gap had decreased slightly since 2013. As of this date, it was evaluated at $67 million.

At the beginning of 2018, a Strategy for the maintenance of the City's vehicle and equipment fleet and the fulfilment of additional needs (hereinafter the Strategy) was approved by the director general. According to the chosen scenario, the total investments required over a 10-year period were $469 million, including the accumulated replacement gap of $67 million. This scenario was aimed at bridging the accumulated gap over a four-year period, while managing the other vehicles' end of life. The Strategy also provided for limiting acquisitions of new vehicles (to meet new needs, not for replacement purposes). This was about new vehicles being added to the rolling stock inventory, which represents additional operating costs. According to this scenario, the projected annual investment was $46.9 million over a 10-year period.

The decision to replace a vehicle must be justified according to various criteria. The age of the vehicle may be one of them, but other factors can also be taken into consideration, such as its use level, its operating costs, its maintenance and repair costs and its ability to adequately meet business units' current and anticipated needs. There is reason to question whether the SMRA has adopted a strategy for analyzing its vehicle fleet that would enable it to identify vehicles that need to be replaced. If such a Strategy exists, there is reason to question whether it can help optimize the use of vehicles before they are replaced and whether it can be used to identify the vehicles to be replaced well enough in advance that the SMRA and the business units concerned have time to establish an acquisition process that is advantageous for the City, in particular, through bulk purchasing, where possible. There is also reason to question whether the investments provided for are aligned with those effectively allocated to deploy and maintain this Strategy.

2. PURPOSE AND SCOPE OF THE AUDIT

Pursuant to the *Cities and Towns Act* (CTA), we carried out a performance audit mission on the management of rolling stock. We carried out this mission in accordance with the Canadian Standard on Assurance Engagements (CSAE) 3001 of the CPA Canada Handbook – Assurance as well as with the other Canadian assurance standards that apply to the public sector, as issued by the Auditing and Assurance Standards Board with the support of CPA Canada.

The purpose of this audit was to evaluate the extent to which the City has established a Strategy for upgrading the vehicle and equipment fleet (bridging the obsolescence gap) and ensuring its optimal maintenance while meeting users' needs.

The responsibility of the Auditor General of the Ville de Montréal consists of providing a conclusion on the audit's objective. For that purpose, we gathered sufficient and appropriate evidence to support our conclusion and gain reasonable assurance. Our evaluation is based on the criteria that we deemed valid in the circumstances. These criteria are presented in Appendix 5.1.

The Auditor General of the Ville de Montréal applies the *Canadian Standard on Quality Control* (CSQC) 1 of the CPA Canada Handbook – Assurance. Consequently, he maintains an extensive quality control system that includes documented policies and procedures with respect to compliance with the rules of ethics, professional standards and applicable legal and regulatory requirements. He also complies with the rules on independence as well as with the other rules of ethics of the *Code of ethics of chartered professional accountants*, which are based on the fundamental principles of integrity, professional competence and diligence, confidentiality and professional conduct.

Our audit work focused on the period from January 1, 2017, to September 30, 2019. However, for some aspects, data prior to this time was also considered. It was primarily carried out from May 2019 to January 2020. We also took into account information that was sent to us up to March 2020.

This work was mainly performed with the following business units:

- The Service du matériel roulant et des ateliers;
- The Service de police de la Ville de Montréal (SPVM);
- The Service de sécurité incendie de Montréal (SIM);
- Pierrefonds-Roxboro borough;
- Saint-Laurent borough;
- Ville-Marie borough;
- Villeray–Saint-Michel–Parc-Extension borough.

Upon completing our audit work, we submitted a draft audit report to the managers of each audited business unit for discussion purposes. The final report was then forwarded to the management of the Service du matériel roulant et des ateliers to obtain action plans and timelines for their implementation, as well as to the Direction générale, the interim deputy director-general of the Services institutionnels, the deputy director-general of the Service aux citoyens and the director of the Service de la concertation des arrondissements. A copy of the final report was also submitted, for information purposes, to borough directors not directly targeted by our audit, so they can implement recommendations if appropriate.

3. AUDIT RESULTS

3.1. Objectives of the Consolidation of Activities Related to the Rolling Stock Function

3.1.A. Background and Findings

The decision-making record recommended by the Direction générale adjointe aux services institutionnels supporting the city council resolution to declare that the exercise of all rolling stock–related powers falling under the boroughs' responsibility, except for contracts involving leasing for less than one year and leasing with operator, is within its jurisdiction, listed the following expected benefits:

- Economies of scale generated by standardization;
- Better control of the cost of replacement parts;
- Implementation of planning, management and maintenance standards;
- Replacement of conventional vehicles and equipment with 100% electric models or hybrids;
- Introduction of performance indicators that promote accountability and facilitate the identification and tagging of areas for improvement;
- Overall knowledge of activities and assets;
- Integrated management of the life cycle of vehicles and equipment;
- Elimination of duplication in technical specifications and health and safety;
- Flexibility of material and human resources;
- Better follow-up with the Société de l'assurance automobile du Québec to ensure compliance with laws and regulations.

In view of the fact that the workload is significant when the activities of 19 boroughs are consolidated with those of the central departments and that priorities had to be established, we examined the main objectives that have guided the SMRA's management of activities since January 1, 2017.

On the basis of annual budget documents submitted to the Commission permanente sur les finances et l'administration (in 2017, 2018 and 2019), we identified objectives that were directly related to the Strategy or could have an impact on the implementation of this Strategy, and we evaluated the extent to which they were expressed in measurable and temporal terms to make them easier to evaluate.

Table 1 – **Main SMRA Objectives Related to the Implementation of the Investment Strategy**

OBJECTIVE	BUDGET DOCUMENTS			OBJECTIVE EXPRESSED IN TERMS THAT ARE		COMMENTS
	2017	2018	2019	MEASURABLE	TEMPORAL	
Eliminate the obsolescence of $83 million over 4 years.	N/A	Yes	Yes	Yes over 4 years, but not on an annual basis.	Yes, over 4 years	Targets are established in the annual presentations given to business units (in 2018 and in 2019).
Maintain the 10-Year Global Investment Strategy.	N/A	Yes	Yes	No both on an annual basis and over 10 years.	Yes, over 10 years	Investment targets are established in the Strategy.
Standardize vehicles and equipment.	Yes	Yes	Yes	No	Not in 2017 or 2018 Yes in 2019	
Replace conventional vehicles and equipment with 100% electric models or hybrids.	Yes	No	Yes	Not in 2017 or 2018 Yes in 2019	No	However, objectives appear in the *Rolling Stock Green Policy*.

We noted that the objectives appearing in budget documents are stated in general terms and are to be achieved over a period longer than one year. We found, however, that they are not usually expressed in measurable terms. We did note, on the other hand, that annual targets were established and appear in documents prepared by the SMRA, such as the annual presentation given to business units, the Strategy and the *Rolling Stock Green Policy*. We also noted that the objective aimed at standardizing vehicles and equipment was not expressed in temporal terms in budget documents. According to the information obtained, one objective and targets were not established from the outset, because the SMRA had to pursue consultations with representatives of the business units beforehand.

This situation does not allow the SMRA to demonstrate later on, during accountability reporting, the extent to which the results were adequate nor that they were achieved within a reasonable time. We think that the SMRA should not only express its objectives in measurable terms, it should also provide information on the annual targets established so that it will eventually be able to produce useful, relevant accountability reporting.

RECOMMENDATION

3.1.B. We recommend that the Service du matériel roulant et des ateliers ensure that it expresses the objectives set out in its budget documents in measurable terms, for all its priorities, accompanied by annual targets, in order to show its commitment and also to be able to report later on the extent to which the results were achieved or not.

RESPONSE

3.1.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.2. Knowledge of the City's Vehicle Inventory

3.2.A. Background and Findings

In order to be able to manage a fleet of vehicles over their entire life cycle, from the development of specifications in preparation for the acquisition of vehicles to the scrapping of vehicles, it is essential to have a certain amount of information on the fleet, starting with a full inventory. This is what we wished to confirm first in this audit.

Vehicle Inventory Management Tools

To manage its vehicle fleet, the SMRA uses several software tools. Central to these tools is a database called InvFlotte, which the SMRA created using WinDev in 2017, before centralization.[5] Initially, the function of this tool was to monitor and invoice services provided by the SMRA to business units.[6] It is now in InvFlotte that a new vehicle serial number is entered, along with all the information related to the vehicle including make, model and date of receipt of the vehicle by the SMRA and the date of entry into service in the business unit.

However, InvFlotte does not contain information on vehicle maintenance and use. This information, such as the periodic statement of kilometres travelled and maintenance costs, is collected in a second database called MIR.[7] Unlike InvFlotte, which contains both active vehicles and equipment and those that are no longer used, MIR lists only assets. Some of the data in InvFlotte and MIR is identical, including the make, the model and the year.

[5] WinDev is a software development application.

[6] Prior to 2017, business units managed their fleets. They had a dedicated budget, and the SMRA billed them for the services it provided.

[7] MIR (Maintenance, Inspection, Repair) is a commercial software program developed to manage the maintenance of a vehicle fleet. The City, however, purchased software licences to continue development independently of the developer.

To load MIR with vehicle maintenance data, the SMRA must rely on two information exchange gateways that the SMRA developed under WinDev. One is TempsDiff, in which a foreman can enter the time worked by a mechanic on a given vehicle, and the other is GestPiece, which will obtain from the Système Intégré Montréal (SIMON) the cost of various parts used for vehicle maintenance and repair. The use of vehicles or equipment, in terms of kilometres travelled or hours of use, is documented in two ways. During maintenance work, the mechanic enters the odometer reading or the total hours of operation on the work order, and the foreman enters them in MIR once the work order is closed. When refuelling at one of the City's fuel stations, to prime the pumps, employees must enter a code that contains the vehicle's serial number and odometer reading. This information is then stored by CoenCorp fuel management software. However, there is no link or automatic sharing of information between MIR and CoenCorp.

The SMRA is no longer able to continue developing tools under WinDev because the staff that had the required knowledge were reassigned to the Service des technologies de l'information (STI). There is therefore a risk of the SMRA being dependent on this department for the development of its tools, especially since it is less flexible and its development needs are prioritized on the basis of those in use at other City departments. According to the SMRA, the STI made a commitment to provide support for tools developed under WinDev. Furthermore, there are no written procedures or methodologies explaining how to use these different tools, so there is a risk that the SMRA will no longer be capable of using these additional tools efficiently if a staff member leaves. For instance, an engineer statistician at the SMRA was working on updating the theoretical service life of vehicle classes. The methodology used was not documented, and since the engineer's departure in 2017, according to the SMRA, the theoretical service life of only one or two of the 305 classes has been revised. This data field, which is currently used to identify vehicles to be replaced, is therefore no longer up to date. This staff member had also prepared reasonable or useful service lives, largely based on vehicle use and maintenance costs.

Finally, the SMRA uses an Excel file (the "Acquisition de véhicules" file) to manage vehicle acquisitions. The Acquisition de véhicules file contains various tabs to monitor the development of specifications and calls for tenders, from the acceptance and preparation of vehicles up to their commissioning in business units. A vehicle identified as needing to be replaced should therefore eventually become inactive in InvFlotte, and the new vehicle replacing it should in turn appear in InvFlotte. There is no direct link between the Acquisition de véhicules file and InvFlotte. Operations must be done manually, with the risk of errors that this entails in transcribing a vehicle's serial number, for example. As part of our audit, we established a random sample[8] for each business unit audited equivalent to 20% of the vehicles that were identified as needing to be replaced since the centralization. This sample consists of 223 vehicles distributed in all categories of SMRA vehicles, including 90 at the Service de police de la Ville de Montréal.

[8] The vehicle selection for this sample, i.e., the number of vehicles in each category, was made on a discretionary basis. The size of the sample is large enough to provide sufficient evidence to support our conclusions.

Out of 133 randomly selected vehicles, not including SPVM vehicles, six vehicles, or 4.5% of the sample, had serial numbers entered in InvFlotte that did not match those in the Acquisition de véhicules file.

Along with all these tools, the vehicle fleet used by the SPVM is managed by another commercial computer-assisted maintenance management software known as MAXIMO. The acceptance and commissioning dates of a vehicle, its make and model, its serial number, purchase cost, maintenance costs, and odometer reading are all entered directly in MAXIMO. For odometer readings of SPVM vehicles, each unit of this department must electronically transmit the odometer readings of all vehicles it uses once a month. Before data is transferred into MAXIMO, it is compared with the data of the previous month for each vehicle, in order to ensure the values match.

Consistency of the Vehicle Inventory Among the Different Tools

Since InvFlotte and MIR both manage data on the same vehicles, at least for assets, there is reason to expect that the two tools contain the same vehicle and equipment data. As of September 2019, InvFlotte contained 8,676 active vehicles and equipment while MIR contained 8,760 as of the same date. Rather than compare the total number of vehicles, we checked to see whether each vehicle is listed in both tools based on a data extraction. There are 12 vehicles entered in InvFlotte that are not found in MIR and 96 vehicles in MIR that are not found in InvFlotte. Therefore, a total of 108 vehicles, a figure representing 1.2% of the City's vehicle fleet, are found in only one of the two tracking tools. The SMRA states that it was aware that there was a discrepancy between the contents of the two tools, but never sought to identify its cause. Table 2 shows the distribution of vehicles per category in InvFlotte and in MIR as well as the number of vehicles in each category that exists in one database and whether it is found in the other.

While SPVM vehicles are managed by MAXIMO, the InvFlotte database at the SMRA nevertheless contains summary information on these vehicles, such as the serial number, the model and make, the acceptance date, commissioning date and, if applicable, scrapping date. We compared the total MAXIMO inventory with the City's inventory in InvFlotte in order to ensure that all SPVM vehicles are in both databases. Of the 1,443 active SPVM vehicles appearing in InvFlotte, only 1,334 vehicles appeared in MAXIMO, which represents a 7.6% discrepancy. This leads us to question the representativeness of the contents of MAXIMO and InvFlotte at least in terms of vehicles used by the SPVM, which is the business unit with the most vehicles in the City.

We did not try to identify the causes of this discrepancy. However, considering that the City wants to maintain the size of the fleet or its economic value, we think it is important that both the business units that use vehicles and the SMRA have a single reading of the size of the vehicle fleet.

We asked the business units audited to provide us with lists of the vehicles they used in their operations. All the business units provided us with such lists.[9] We attempted to determine whether these vehicles appeared in the SMRA's InvFlotte database. Out of a total of 2,966 vehicles appearing on lists obtained from the business units audited, 86 vehicles, or 2.9% of them, did not appear in InvFlotte. While this is not a high percentage, it still causes us to question, once again, whether the InvFlotte database is complete.

As the body responsible for managing the City's entire vehicle fleet, the SMRA needs to have an accurate reading of the actual number of vehicles in service in all business units. If it does not, and if it erroneously considers vehicles to be in use or is unaware of the existence of other vehicles, the SMRA cannot adequately evaluate the extent to which its vehicle fleet is obsolete, and can therefore not provide for the investment needs for the next few years to manage this obsolescence.

Based on these findings and discrepancies observed between InvFlotte and MIR, we think that a physical inventory of vehicles and equipment should be taken, so that the SMRA can have an accurate reading of the exact size of the City's vehicle fleet.

Table 2 – **Comparison of InvFlotte and MIR for the Number of Vehicles per Category as of September 2019**

DATABASE	EXISTS IN THE OTHER DATABASE	A - LIGHT CARS	B- LIGHT TRUCKS	C- HEAVY TRUCKS	D- LIGHT TOOL VEHICLES	E- HEAVY TOOL VEHICLES	F- OTHER LIGHT EQUIPMENT	G- OTHER HEAVY EQUIPMENT	OTHER VEHICLES NOT BELONGING TO ANY CATEGORY	TOTAL
	Total	2,351	1,403	1,371	370	789	1,932	444	16	**8,676**
InvFlotte	Yes	2,351	1,403	1,368	370	788	1,926	444	14	**8,664**
	No	0	0	3	0	1	6	0	2	**12**
	Total	2,366	1,411	1,376	367	766	1,670	465	339	**8,760**
MIR	Yes	2,351	1,402	1,367	361	760	1,662	462	299	**8,664**
	No	15	9	9	6	6	8	3	40	**96**

[9] Since lists may have been produced on different dates, especially the one for Pierrefonds-Roxboro borough, which was representative of the year 2018, it was not possible to make a comparison to prove or disprove whether the contents of these lists represented the entire vehicle fleet used by a business unit by comparing them to the InvFlotte content as of September 2019.

Knowledge of the Age of Vehicles

Since the criterion used by the SMRA to identify an obsolete vehicle that needs to be replaced is its age, we wondered whether InvFlotte and MIR contained high-quality data for establishing this parameter. For 218 of the 223 vehicles in our sample, the year of the vehicle is similar in InvFlotte and in MIR[10] and corresponds to the vehicle's serial number.[11] For the other five, in one case, there is no date in InvFlotte for the vehicle that is no longer in service. For three other vehicles, the year of each vehicle is similar in InvFlotte and in MIR, but the vehicles were acquired by the City well after this date, and in this case, the serial numbers take into account the commissioning date rather than the vehicle's year of manufacture. Finally, for one case, a vehicle's serial number is not matched with its year of manufacture or even its commissioning date. Considering this very low rate of non-correspondence (0.4%, or 1 case out of 223), we consider the information on the age of the vehicles in both InvFlotte and MIR to be of a high enough quality[12] to identify obsolete vehicles.

The InvFlotte data does not correspond perfectly to the MIR data; nor does the data in InvFlotte perfectly match the data in MAXIMO. As stated, we also noted errors in the Acquisition de véhicules file for monitoring new vehicles to be accepted in order to manage obsolescence, largely because vehicle information is entered manually. Several other tools developed internally are also necessary for providing an overview of a fleet of close to 8,700 vehicles valued at close to $700 million for the purpose of managing it.[13] In 2019, the SMRA requested that the STI develop an application to integrate management of the arrival of new vehicles directly into MIR so that it would no longer need to use the Acquisition de véhicules file. At the time of our audit work, there was no new development in this area, according to the SMRA.

10 When the vehicle is no longer active, it no longer appears in MIR. So, since we were unable to compare the years given in MIR and InvFlotte and compare these with vehicle serial number, we compared only the age calculated using InvFlotte and compared it to vehicle serial numbers.

11 The vehicle's serial number is based on the following structure: AAA-BBCCC, where the letters AAA correspond to the three-digit code for the vehicle class, the letters BB refer to the year of the vehicle (e.g., 99 for 1999 and 05 for 2005) and the letters CCC are a unique identifier.

12 Quality here means that similar values are observed in the two databases for a single vehicle. However, we did not verify on site whether the year associated with a vehicle is accurate.

13 The value of the fleet was estimated by the Bureau du vérificateur général of the Ville de Montréal on the basis of data available for the City's 8,676 active vehicles in September 2019. As of January 2018, the Strategy for maintaining the City's vehicle and equipment fleet valued the City's fleet of approximately 7,400 vehicles at $571 million.

RECOMMENDATION

3.2.B. We recommend that the Service du matériel roulant et des ateliers document the methodologies to be followed for using the various tools required for comprehensive management of information on a vehicle's life cycle, in order to ensure that the load capacity of the databases and vehicle fleet management are maintained, regardless of the resources used in the department.

RESPONSE

3.2.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

RECOMMENDATION

3.2.C. We recommend that the Service du matériel roulant et des ateliers establish a mechanism to ensure consistency among the vehicle entries appearing in the InvFlotte and MIR databases, those appearing in MAXIMO for the Service de police de la Ville de Montréal, those in the Acquisition de véhicules file, and those that are actually in the field and used by the different business units, in order to have a true, accurate picture of the number of active vehicles in the City.

RESPONSE

3.2.C. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

RECOMMENDATION

3.2.D. We recommend that the Service du matériel roulant et des ateliers document the establishment of the theoretical service life and ensure that it is updated, in order to show that the calculation of the obsolescence of vehicles and equipment is objective and realistic.

RESPONSE

3.2.D. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.3. Investment Strategy for Vehicle Replacement

3.3.1. Establishing the Investment Strategy

3.3.1.A. Background and Findings

In 2017, the Direction générale mandated the BPPI and the SMRA to develop a long-term Strategy for eliminating the gap and ensuring that assets under the responsibility of the SMRA are maintained. This Strategy was part of the planning of the 2018–2020 Three-year capital expenditures program (TCEP) and the 2018–2027 Ten-Year Plan.

At the end of our analysis, the report produced showed:

- the level of obsolescence of the vehicle and equipment fleet, subdivided into seven categories, as of January 1, 2017. According to the study, for all business units together there were 7,372 vehicles and equipment with a replacement value of $570.81 million. More specifically, these included:
  - 5,702 vehicles with a replacement value of $517.30 million and a weighted-average service life of 10.91 years;
  - 1,670 equipment with a replacement value of $53.51 million and a weighted-average service life of 23.47 years.
- actual expenditures made by all the business units for bridging the gap from 2013 to 2017, fleet maintenance and additional needs. For these five years preceding the consolidation of activities, the average annual expenses amounted to $36 million;
- at the end of 2016, the accumulated gap for each of the seven categories was $67 million;
- the investments needed to meet the demand for annual replacements for the fleet and additional needs;
- three possible scenarios for dealing with the obsolescence gap, bridging the gap and additional needs proposing that the gap be bridged over a period of four, six or eight years.

The scenario approved verbally by the director general corresponded to the one recommended by the BPPI and the SMRA, which involved bridging the gap over four years, but with smoothing, which allowed investments to remain stable at $46.88 million a year for 10 years. This scenario corresponded to the SMRA's increased ability to implement the Strategy, evaluated at $50 million.

Table 3 – **Annual Investment Needs (Vehicle and Equipment Replacement, and Fulfilment of Additional Needs) (in Millions of Dollars)**

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
Bridging the accumulated gap (4 years)	16.83	16.83	16.83	16.83							67.32
Update for bridging of the gap	0.02	0.55	0.83	1.12							2.52
Obsolescence (maintenance)	16.79	16.67	35.01	28.39	30.61	57.72	54.98	51.41	45.10	42.28	378.96
Additional needs	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	20.0
Total annual needs	**35.64**	**36.05**	**54.67**	**48.34**	**32.61**	**59.72**	**56.98**	**53.41**	**47.1**	**44.28**	**468.8**
Annual investments according to the chosen scenario	**46.88**	**46.88**	**46.88**	**46.88**	**46.88**	**46.88**	**46.88**	**46.88**	**46.88**	**46.88**	

Source: Investment Strategy for maintaining the City's vehicle and equipment fleet and meeting additional needs, produced by the BPPI as of January 17, 2018.

Given that the Strategy will guide the TCEP budget allocations for the next 10 years in order to achieve the objectives, we wanted to make sure that the numbers used when the Strategy was developed were reliable, since these are the annual investments that were established to guide the TCEP budget for the replacement of vehicles and equipment. First, we were unable to obtain documentation supporting the numbers that were used to establish this Strategy, as of January 1, 2017. We could therefore not be certain that all the data had been considered and that the annual investment needs had been properly evaluated. We think that all documentation supporting such a Strategy should be kept as proof of the data used and the assumptions made. Such documentation would also be useful for purposes of subsequent review.

To make sure these figures were plausible, we compared them with data extracted from the InvFlotte database on January 1, 2017. The results of our analysis reveal that:

- the number of vehicles considered for the purposes of the Strategy was underestimated, because approximately 400 vehicles held as of January 1, 2017, were added to the InvFlotte database after the Strategy was adopted;
- for each class, the replacement value should correspond to the last vehicle acquisition cost. We were unable to reconstruct this data with reasonable assurance. On the one hand, a history of the replacement values used was not kept for all vehicles replaced in 2018 or in 2019. On the other hand, considering that the number of vehicles was underestimated, it is highly probable that the replacement value was, too;

- the weighted-average service life of three categories of vehicles and equipment seems to have been underestimated. Moreover, the fact that the number of vehicles was underestimated is likely to have an impact on this data;
- the accumulated gap: the value established by the SMRA when the Strategy was developed at the end of 2016 was $67.3 million. According to the information obtained, the accumulated gap as of June 22, 2017, was $83 million, which was likely to have an impact on the total investment needs.

We are aware that the BPPI and the SMRA used data available in the databases when they conducted their analysis in order to develop the Strategy. According to the information obtained, the Strategy has not been updated since it was approved by the director general in 2018. Considering that two years have elapsed since this Strategy was developed and that new data has become available since then, we think it would be appropriate to update the investment needs. More specifically, with respect to approval of the Strategy, we think that it should initially have been approved by the authorities concerned not only because of the scope of the orientations adopted in it and their impact on all business units, but also because of the resources required to follow up on them. We therefore believe that when the Strategy is updated, the formal authorizations required should be obtained from the authorities concerned. We believe that this would enable them to confirm whether they still support the orientations adopted.

RECOMMENDATION

3.3.1.B. We recommend that the Service du matériel roulant et des ateliers keep the documentation supporting the establishment of an Investment Strategy, in order to show proof of the data used and the assumptions made for control or review purposes.

RESPONSE

3.3.1.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

RECOMMENDATION

3.3.1.C. We recommend that the Service du matériel roulant et des ateliers update the Investment Strategy for replacing the fleet of specialized vehicles and equipment and obtain all official authorizations required so that it reflects up-to-date information on the level of investments needed for the coming years, including the accumulated gap, so that they are integrated into the Three-year capital expenditures program and the Ten-Year Investment Plan.

RESPONSE

3.3.1.C. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.3.2. Investment Budgets for the Implementation of the Strategy

3.3.2.A. Background and Findings

In order for the Strategy to be implemented as planned and achieve the expected objectives, the projected budgets must be allocated and spent as planned.

As mentioned above, according to the Strategy approved by the director general in early 2018, the investment budget was to amount to $47 million and had to help bridge the accumulated obsolescence gap of $67.3 million over a four-year period (from 2018 to 2021). To achieve the objectives, the chosen scenario involved an investment budget allocation for bridging the accumulated gap, replacing vehicles that have reached the end of their useful service life (maintenance) and for acquisitions attributable to new needs. The allocation of the investment budget targeted three objectives:

- increasing the reliability of vehicles and equipment by bridging the accumulated obsolescence gap;
- preventing vehicles and equipment items that reach the end of their useful service life from falling into obsolescence as well, which would increase the accumulated obsolescence gap;
- keeping vehicle acquisition for the purpose of meeting new needs at a minimum level so as not to increase the vehicle and equipment inventory.

In 2018, new data that was not taken into account when the Strategy was established led the SMRA to revise the accumulated obsolescence gap upward to $83 million. The objective was still to bridge this gap within four years within the same timeframe, i.e., from 2018 to 2021. As illustrated in Table 4, we found that this revision of the accumulated gap has had an impact on the projected investment budget allocation. Since investments were smoothed over a 10-year period, the discrepancy between the investment needs established and the investment budget granted enabled the SMRA to absorb an accumulated gap that is higher for the first two years of the Strategy.

Table 4 – **Investment Strategy Distribution of Investment Budget for the First 4 Years (2018 to 2021) (in Millions of Dollars)**

	DISTRIBUTION ACCORDING TO THE INVESTMENT STRATEGY INCLUDING THE ACCUMULATED GAP OF $67.8 MILLION					DISTRIBUTION ACCORDING TO THE INVESTMENT STRATEGY INCLUDING THE ACCUMULATED GAP OF $83 MILLION				
	2018	2019	2020	2021	4-YEAR TOTAL	2018	2019	2020	2021	4-YEAR TOTAL
Bridging the obsolescence gap	16.83 36%	16.83 36%	16.83 36%	16.83 36%	67.32	24.00 51%	25.00 53%	8.00 17%	26.00 55%	83.00
Obsolescence (maintenance)	16.79 36%	16.67 35%	35.01 74%	28.39 60%	96.86	16.79 36%	16.67 36%	35.01 74%	28.39 60%	96.98
Additional needs	2.00 4%	2.00 4%	2.00 4%	2.00 4%	8.00	2.00 4%	2.00 4%	2.00 4%	2.00 4%	8.00
Bridging update	0.02	0.55	0.83	1.12	2.52	0.02	0.55	0.83	1.12	2.52
Surplus budget	11.24	10.83	(7.79)	(1.46)	12.82	4.07	2.66	1.04	(10.63)	12.82
Annual investment budget	**46.88**	**46.88**	**46.88**	**46.88**	187.52	**46.88**	**46.88**	**46.88**	**46.88**	187.52

During our audit, we evaluated the extent to which investment budgets allocated to vehicle replacement were in line with what was provided for in the Strategy approved in 2018. It should first be noted that the investment budget obtained by the SMRA for 2017, which was the first year of consolidation of activities, amounted to $36 million. We noted that since the development of the Strategy, the SMRA has had an investment budget of $46.9 million, as provided for 2018 and 2019. According to the information obtained, when the Strategy was approved, this budget had been secured for the SMRA. However, for the following years, it had been agreed that the SMRA had to demonstrate its investment needs every year. At the time of our audit, as a result of the SMRA's representations to the City's budget committee, the investment budget could be maintained at $46.9 million for 2020. For 2018, 2019 and 2020, the TCEP budget granted to the SMRA is therefore essentially in line with the Strategy. However, according to the information obtained, the SMRA's investment budget is an overall package, and budget planning was not oriented to staying in line with the investment budget allocation as provided for in the Strategy. On the other hand, the planned acquisition of specialized vehicles and equipment was mainly oriented towards bridging the accumulated obsolescence gap, and more particularly towards replacing SIM and SPVM vehicles, since public safety issues are at stake. Since 2018, there has also been an increase in vehicle and equipment acquisitions to meet new needs.

This situation is likely to affect adherence to the scenario calling for bridging the accumulated obsolescence gap over four years, along with all the related disadvantages (e.g., damage to vehicles affecting the delivery of services and increases in repair costs). It is also likely to cause an increase in the vehicle and equipment inventory. We think that the SMRA must stay in line with the investment budget allocation, as provided for in the Strategy, in order to achieve the expected objectives, unless it is granted an officially approved dispensation.

RECOMMENDATION

3.3.2.B. We recommend that the Service du matériel roulant et des ateliers comply with the Investment Strategy, unless it is granted an officially approved dispensation, in order to ensure that it bridges the accumulated obsolescence gap in accordance with the projected scenario and to prevent the gap from increasing, while maintaining the vehicle and equipment fleet inventory.

RESPONSE

3.3.2.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.3.3. Use of Budgets for Implementing the Investment Strategy

3.3.3.A. Background and Findings

In order for the Strategy to be implemented and achieve the expected objectives, the budgets must be spent as planned.

During our audit, we examined the budget monitoring for the three replacement programs managed by the SMRA. As illustrated in Table 5, we noted that more than 90% of the original budget was spent for 2017 and 2019 (10 months) and nearly 74% for 2018. We also noted that the expenditure commitments for future years were quite considerable for 2018 and 2019.

Table 5 – **Overview of Budget Monitoring of Vehicle Replacement Programs (in Millions of Dollars)**

	2017	2018	2019[a]
Original budget	36.0	47.3	47.0
Actual spending	33.9	34.9	42.7
Budget share	94.2%	73.8%	90.9%
Commitments	11.5	55.0	35.2

[a] 10 months.
Source: data from SIMON, as of December 7, 2019.

In view of the SMRA's objectives of reducing the obsolescence of the vehicle fleet and limiting the acquisition of vehicles to meet new needs, we attempted to evaluate the extent to which the amounts spent out of the investment budgets of 2017, 2018 and 2019 corresponded to replacements or to a fulfilment of new needs. First of all, we observed that the SMRA had not developed a management report that would enable it to monitor this aspect. We asked the SMRA to provide us with a report on vehicle acceptances for 2017, 2018 and 2019 that distinguished those related to vehicle replacements from those related to new acquisitions. We found that the data extractions produced, when we cross-checked them with the InvFlotte data and the MIR data, could not provide us with reliable information to address our concern. As Table 6 below illustrates, it was not possible, using the data provided, to determine the number of vehicles pertaining to either of these two situations.

Table 6 – **Acceptance of Vehicles and Equipment (in Numbers) for 2017, 2018 and 2019**

STATUS IN DATABASES	NUMBER OF VEHICLES AND EQUIPMENT		
	2017	2018	2019 (UP TO SEPTEMBER 16)
Total acceptances[a]	**763**	**730**	**505**
Acceptances with replacements[b]	189	388	525
Acceptances with no information on replacements[b][c]	574	342	(20)
Vehicles that were replaced			
• Service de police de la Ville de Montréal	(345)	(97)	(22)
• Service de sécurité incendie de Montréal	(11)	(13)	(5)
Vehicles specified as added	(3)	(41)	(59)
Unexplained discrepancy	**215**	**191**	**(106)**

[a] Vehicle acceptances according to InvFlotte.
[b] Cross-checked data from MIR and InvFlotte.
[c] No information indicating replacement.
Source: data from the SMRA.

Concerning the number of vehicles not indicated as being for replacement purposes, according to the information available in the databases, the SMRA was unable to provide us with proof that these were in fact new vehicles. Of this number, we can identify the vehicles that were replaced by the SPVM and the SIM. The others may be cases for which information is missing in the databases, with the result that it is not possible to indicate whether replacements or new acquisitions (new needs) are involved.

In conclusion, we believe that with the information currently entered in the databases, it is not possible to provide management reports illustrating the extent to which actual spending helped reduce obsolescence due to replacements, and the extent to which the number and the cost of new vehicles acquired to meet new needs were in line with the budget allocation provided for in the Strategy. We think it would be useful for the SMRA to have such management information so that it could account for its management to decision-makers, as well as to boroughs, which will be required to renew the competency with city council.

RECOMMENDATION

3.3.3.B. We recommend that the Service du matériel roulant et des ateliers establish mechanisms for ensuring that it has data it can use to identify both vehicle acquisitions that correspond to replacements and those intended to meet new needs, so that it can monitor the budget allocation provided for and demonstrate adherence to these budgets.

RESPONSE

3.3.3.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.3.4. Evaluation of the Implementation of the Investment Strategy

3.3.4.A. Background and Findings

In order for the Strategy to be implemented as planned and achieve the expected objectives, a periodic evaluation must be carried out to determine whether the rate at which the obsolescence gap is being bridged is adequate. During this mission, we checked to see whether such an evaluation had been done by the SMRA since the Strategy was approved.

Our audit revealed that since the Strategy for maintaining the vehicle and equipment fleet was approved, a replacement process had been established to bridge the obsolescence gap in 2018 and in 2019. However, after two years of being in place, there has been no evaluation as such to judge the extent to which it has been implemented.

Considering that, at the beginning of 2018, the accumulated gap that had been calculated on January 1, 2017, was revalued at $83 million and that bridging this gap was to take place over a four-year period, reduction of the accumulated gap of $24 million and $25 million, respectively was planned for the first two years (2018 and 2019) out of the total investments of $46.9 million/year. For the first two years, the bridging provided for was therefore a total of $49 million out of the $83 million.

Despite the SMRA's efforts, data extracted from InvFlotte revealed, however, that the accumulated gap did not decrease over these first two years, as provided for by the Strategy. Rather, it increased as a result of new vehicles reaching the end of their theoretical service life. Furthermore, in 2019 (as of September 16, 2019), the accumulated gap was to be reduced by $25 million, but, as shown in Table 7, we noted that it had still not decreased. However, in our opinion, by taking into consideration vehicles that were identified for replacement and for which commissioning was scheduled in 2019, the accumulated gap should be at least

$50 million as of December 31, 2019. If the commissioning takes place as planned, there will be a decrease in the accumulated gap, but it will definitely not be in line with what was planned in the Strategy, since the accumulated gap was to amount to $34 million. In fact, according to what was provided for, the accumulated gap was to be representative, as illustrated in Table 7.

Table 7 – **Accumulated Obsolescence Gap for the Period from December 31, 2016, to December 31, 2021**

	ACCUMULATED GAP PROVIDED FOR IN THE INVESTMENT STRATEGY	ACCUMULATED GAP ACCORDING TO THE DATABASE ON SEPTEMBER 16, 2019 [a] [b]
December 31, 2016	$67.9 million	
December 31, 2017	$83.0 million	$89.2 million
December 31, 2018	$59.0 million	$90.4 million
December 31, 2019	$34.0 million	$90.4 million
December 31, 2020	$26.0 million	
December 31, 2021	$0.0 million	

[a] Source: BVG – Data from data extractions from InvFlotte.
[b] Includes vehicles that are kept in service, as decided by the SMRA or business units, even though they have reached the end of their service life (2017: $11.9 million; 2018: $13.6 million and as of September 16, 2019: $14.7 million), as well as strategic vehicles used by the SIM for which obsolescence has not been quantified.

According to the SMRA, there would be a delay of a few months in bridging the accumulated gap, which appears unrealistic to us. According to this department, the main causes would be attributable mostly to:

- assets acquired with the TCEP budget without being identified initially (e.g., the SIM boat), resulting in a delay in the planned replacement of other vehicles;
- assets replaced at a cost higher than anticipated as a result of changing needs and technology. Such a situation entails a delay in the replacement of another business unit's vehicle;
- the theoretical service life, which was still not well established. Some vehicles are replaced before they reach the end of their theoretical service life.

The fact that no exercise was conducted to measure the impact of the implementation of the Strategy made it impossible to monitor changes in the accumulated obsolescence gap and make any necessary adjustments to the processes in place. It also meant that comprehensive information was not provided for the purpose of making decisions about obsolescence management.

We think that a periodic re-evaluation should be conducted so that appropriate steps are taken and decision-makers are informed of this so that they can make appropriate decisions.

RECOMMENDATION

3.3.4.B. We recommend that the Service du matériel roulant et des ateliers carry out an exercise periodically to measure the impact of the implementation of the Investment Strategy, in order to determine whether the rate at which the obsolescence is bridged as well as the projected investments are adequate.

RESPONSE

3.3.4.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.4. Vehicle Replacement Process

3.4.1. Overall Steps in the Vehicle Replacement Process

3.4.1.A. Background and Findings

Identification of Vehicles to be Replaced

So far, it has been mentioned that the criterion for identifying an obsolete vehicle is its age. At the SPVM, the costs of maintaining and using the vehicle, or its total kilometres travelled, are also considered. When a vehicle qualifies as being eligible for replacement, it is important to know what it is to be replaced with. Thus, in the fall of every year, the SMRA meets with all the business units to give them a presentation on vehicle renewal for the coming year, including feedback on the Strategy for bridging the obsolescence gap and a summary of acquisitions made in previous years. During this presentation, the SMRA provides the business units with all the sheets showing the different standards, as well as a document explaining the future process of identifying and validating vehicles to be replaced.

Following this presentation, the SMRA meets individually with representatives from all business units to discuss the vehicles to be replaced. Prior to this meeting, it has identified vehicles that are obsolete or will become obsolete over the next three years (the purchase of applicable vehicles out of the TCEP). These lists are sent in advance to business units so that they can discuss them internally. In fact, the instruction booklet given to business units states that a person is to be appointed to meet with the SMRA and that this person must have previously discussed with the rest of the business unit the list of vehicles sent by the SMRA.

At the meeting with the SMRA, for each vehicle, the business unit must specify whether it wants to keep a similar vehicle (in compliance with standards) or replace it with another type of vehicle if the business unit's needs have changed. If the type of vehicle is changed, the SMRA agrees that its value should be no more than 20% greater than that of the vehicle to be replaced. If the value exceeds this threshold, the vehicle is not considered a replacement, but an added vehicle for which a special request must be made and approved by the Direction générale. The SMRA also agrees that one vehicle can be replaced by two vehicles whose total value is equivalent to that of the replaced vehicle.

At this meeting, the business unit can also request that the SMRA prioritize one vehicle over another if replacements for both are already planned, or, for exceptional reasons, request the replacement of a vehicle that has not yet reached the end of its service life.[14] At these meetings, there is no official form for requesting that the SMRA make changes to the preliminary list that was sent beforehand. Requests are made verbally by the business unit.

In the weeks following this meeting, the SMRA sends each business unit a new list of vehicles to be replaced, taking into account the comments expressed at the previous meeting. The minutes of this meeting are also sent. Business units then have one week for the department or borough director to make a final validation of this list of vehicles. Subsequently, the SMRA can compile all lists and develop specifications for the purchase of vehicles.

[14] The SMRA considers a request for the replacement of a vehicle that has not yet reached the end of its service life to be a request for an additional vehicle. However, we noted one example of a request for early replacement by a borough because of the vehicle's advanced state of deterioration.

Purchase and Preparation of Vehicles Before They Are Delivered to Business Units

Once the business units have validated the list of vehicles to be replaced, the SMRA begins the vehicle acquisition process, which can be summarized in three major steps for which it is responsible.

- Developing specifications, planning and validating calls for tenders:
  - The SMRA groups together vehicles of the same class and prepares technical tender specifications. Depending on the value of the acquisitions and, more importantly, the number of vehicles concerned, the SMRA can make a purchase by agreement if applicable;
  - Depending on the complexity of the specifications, the estimated delivery date (the delivery quarter) can be adjusted;
  - The call for tenders is launched and the SMRA then evaluates the technical compliance of offers received before proceeding to the section on the contracting authority.
- Awarding purchase contracts and ordering vehicles:
  - The SMRA prepares the required documents to obtain the final authorizations to award the contract from the decision-making authorities of the City or agglomeration;
  - Once the authorizations are obtained, a purchase order is prepared and sent to the contracting authority.
- Accepting, preparing and fitting, and commissioning vehicles:
  - When the vehicle is accepted, a vehicle inspection takes place to ensure that it meets the technical specifications. In the case of specialized SIM vehicles that are manufactured specifically for the City, inspections are made while the vehicles are being manufactured in order to minimize non-compliances at the time of delivery and thereby accelerate the process;
  - The vehicle is then prepared. This can simply mean doing the lettering on the vehicle to identify it as a City vehicle, installing various equipment that were specified when the replacement was validated, or doing a complete fitting of the vehicle for special operations;
  - Finally, the business unit is informed that the vehicle is ready for commissioning.

3.4.2. Compliance With Vehicle Replacement Criteria

3.4.2.A. Background and Findings

Theoretically, an SMRA vehicle must be replaced if, because of its age, it has reached the end of its theoretical service life, as evaluated by this department. In the case of vehicles used by the SPVM, two of the three criteria (age, odometer, maintenance and repair costs) must be met in order for it to be replaced. We sought to evaluate the extent to which this rule was observed.

Based on our sample of 133 vehicles identified as needing to be replaced in the business units audited, excluding the SPVM, we noted that 84.7% of the vehicles met this age criterion. For the vehicles used by the SPVM, 81.9% of the vehicles in the sample[15] fulfilled at least two of the three criteria (in 32.5% of cases, all 3 criteria were met). When only two criteria were met, they involved the "Age–Cost" pair more often than "Age–Odometer," with the result that age and maintenance and repair costs take precedence in the choice of vehicles to be replaced at the SPVM.

Based on this analysis, we can conclude that a high proportion of vehicles that were replaced by the City for reasons of obsolescence were replaced in compliance with the current criteria for obsolescence. However, we think that the SMRA should document the reasons justifying the replacement in cases where the vehicles being replaced do not fulfil the age criterion or two out of the three criteria used at the SPVM.

RECOMMENDATION

3.4.2.B. We recommend that the Service du matériel roulant et des ateliers document the reasons supporting the replacement of a vehicle that does not fulfil the defined obsolescence criterion or criteria, in order to account for this at the appropriate time.

RESPONSE

3.4.2.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

[15] The exercise here could only be performed on 83 of the 90 vehicles in the sample, because seven vehicles did not correspond to any of the four groups of vehicles for which the criteria of use, age and repair costs had been provided.

3.5. Vehicle Replacement Process Seen by the Business Units

3.5.1. Mechanism in Place to Enable Business Units to Monitor the Vehicle Replacement Status

3.5.1.A. Background and Findings

A few times a year (the instruction booklet given to business units refers to a quarterly frequency), the SMRA sends each business unit a chart, similar to the one submitted for validation of vehicles to be replaced (the "Identified Replacement Tracking File"). This file shows in particular the progress status of the vehicle replacement (the projected quarter for delivery to the business unit). The boroughs audited state that there are often changes in projected delivery dates of vehicles from one version of the monitoring charts to another, but that these differences are not explicitly indicated. The boroughs themselves must do the work of comparing the different versions in order to find out about these changes. Delays in the delivery of vehicles can have impacts on the services that boroughs provide to citizens. If they do not receive a vehicle as planned, this can delay work or activities that were planned for the vehicle, or force them to do the work with an obsolete vehicle with a higher risk of breaking down, potentially leading to lower productivity over the same period than that of a new vehicle.

The SPVM and the SIM each hold separate statutory meetings with the SMRA every two weeks. At these meetings, vehicle maintenance monitoring and the process of replacing and acquiring vehicles are discussed. We noted that during these meetings, the SMRA presented the SIM with a list of vehicles in the process of being replaced along with the status of the number of vehicles received, vehicles not received, delivery forecasts and reasons justifying certain delays. While we are unable to demonstrate this, we think these recurring meetings must play a positive role in the transfer of information between these business units and the SMRA. We think that this business model between the SMRA and the SPVM or the SIM should be replicated with the other business units, if needed.

RECOMMENDATION

3.5.1.B. We recommend that the Service du matériel roulant et des ateliers clearly and explicitly indicate on the monitoring charts for vehicles needing to be replaced the changes made since the last monitoring and the reasons justifying these changes, so that business units can easily do their own monitoring of the vehicles to be replaced and adjust their operations on the basis of expected changes in the delivery dates of vehicles.

RESPONSE

3.5.1.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

RECOMMENDATION

3.5.1.C. We recommend that the Service du matériel roulant et des ateliers hold statutory meetings with all business units with vehicles that are in the process of being replaced, if needed, at a frequency dictated by their needs, in order to keep them informed of the progress status of vehicle replacements and the reasons that may justify delays.

RESPONSE

3.5.1.C. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.5.2. Non-Availability of Data for Vehicle Replacement Process Since Centralization

3.5.2.A. Background and Findings

During the first year of centralization (and prior to the centralization for business units whose fleet was managed by the SMRA), the SMRA produced vehicle replacement tables that showed, for each vehicle class and for each vehicle, its age, whether it was eligible for a replacement due to its obsolescence in the next four years, the maintenance and repair costs over the past three years, its fuel consumption (or hours of use) over this same period, and the last odometer reading. It then became possible to evaluate what the SMRA calls the reasonable service life of a vehicle, which, unlike the theoretical service life of a vehicle, which is based solely on its age, takes economic aspects into account.

At that time, the business units had a great deal more information than they do now to validate the vehicles to be replaced. First, they had an overview of the entire fleet concerning them and not just vehicles identified by the SMRA as needing to be replaced. Second, data on use and repairs enabled business units to compare vehicles, and possibly, to choose to replace a vehicle that was not old but whose maintenance or repair costs were becoming substantial considering its use, or to keep an older vehicle that was still efficient. Saint-Laurent borough, when its vehicle fleet was not managed by the SMRA, decided which vehicles were to be replaced on the basis of their age, their maintenance costs and their general condition.

According to the information we obtained, the last time these tables were produced was in 2017. They were generated by a program developed internally at the SMRA by an employee who retired in 2017. Changes were later made to the programming languages of the databases, and, without the expertise of the person who developed the program used to generate these tables, it was no longer possible to generate them.

RECOMMENDATION

3.5.2.B. We recommend that, at annual working meetings aimed at identifying vehicles as needing to be replaced, the Service du matériel roulant et des ateliers present business units with a list of all vehicles in service associated with each business unit, together with historical information on maintenance, repair and use, so that each business unit can identify vehicles which, for reasons of efficiency, should be replaced.

RESPONSE

3.5.2.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.5.3. Taking Users' Needs into Account

3.5.3.A. Background and Findings

Even though there is a process in place that is explained every year to business units to give them a chance to express their vehicle needs, the boroughs audited gave us several examples of situations that led them to say that they still do not feel as though they are being heard. We highlight three of them here as examples:

- In September 2018, one borough requested the prioritization of one vehicle in particular that had already been identified as needing to be replaced and for which the delivery date was to be before the end of 2018. The following year, the vehicle had still not been delivered and its projected delivery date had been postponed to the second quarter of 2020, despite the prioritization requested;
- One borough requested that a class 164 vehicle be replaced by a class 167 vehicle, because it was a total loss.[16] The list for the final validation by the business unit clearly showed that it would be replaced by a 167. One year later, in the list of replacements in progress, the new vehicle identified was once again a class 164 one. The Acquisition de véhicules file used by the SMRA to manage the specifications, orders and acceptance of new vehicles, in its June 2019 version, also showed that the vehicle on order was a class 164 one (standard 164A);
- One borough was to receive, based on the initial planning, three snowblower heads in the third quarter of 2018. At the end of August 2019, in the file concerning new obsolescences sent by the SMRA to the borough, delivery of two of the three snowblower heads was now scheduled for the third quarter of 2019 and the third for the third quarter of 2020. In an email to the borough, the SMRA explained that the delivery of the third head had to be postponed until 2020, in order to stay within its 2019 budget envelope, which had already been fully used. According to a message sent by the borough to the SMRA, this postponement *"jeopardized snow removal operations"*, because the borough had added an extra snowblowing team for the 2019–2020 season in order to comply with a change in snow removal practices imposed by the Service de la concertation des arrondissements.

These different areas of dissatisfaction that we identified when it comes to taking users' needs into consideration are reflected in two surveys conducted by the SMRA after the first and second years of the centralization. After the first year, 54.8% of the respondents said they were dissatisfied or very dissatisfied with the service obtained in connection with the acquisition of vehicles and equipment. This percentage climbed to 63.2% when the SMRA repeated the survey, broadening its scope to cover the first two years of the centralization. In view of the results of these surveys and the findings that we made that were directly related to the

[16] A class 164 vehicle is a sport utility vehicle or a four-cylinder crossover, while a class 167 vehicle has six cylinders.

service provided to business units, major changes are needed in the vehicle replacement process and the tools used before it is appropriate for the SMRA to repeat a survey of its users.

RECOMMENDATION

3.5.3.B. We recommend that the Service du matériel roulant et des ateliers develop tools so that business units can express in writing their needs and the changes that need to be made to replacement vehicle management and that they are informed of the follow-up taken on each of these requests, in order to ensure that requests and responses to them are traceable in the planning for vehicles needing to be replaced.

RESPONSE

3.5.3.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.5.4. Definition of the Standards Used to Standardize the Vehicle Fleet

3.5.4.A. Background and Findings

Beginning in 2017, when the SMRA was entrusted with the management of the City's entire vehicle fleet, it undertook an extensive project to standardize vehicles belonging to the same vehicle class. According to the SMRA, the standardization objectives were to accelerate the vehicle acquisition process by further regulating the choices of vehicles, to facilitate the training of mechanics and operators by limiting the number of different vehicles that perform similar functions, to reduce the need for parts for all types of maintenance and repair work, and to generate savings through volume purchasing. According to the SMRA, the annual savings expected from this standardization was evaluated at $4 million for 2018. However, we were provided with no documentation to support this assertion.

At the time of our audit work, the standardization had been defined for 92% of the total value of the City's vehicle fleet, excluding that of the SPVM and the SIM.[17] For each vehicle class, the SMRA produced a sheet defining what the standard contains. In some cases, for a single vehicle class, there may be a few variations from the standard. For instance, for class 140, which includes compact four-door sedans or hatchbacks with an electric drive, there are two variations from the standard, depending on whether the business unit wants to have a light bar on the roof or a retractable signalling arrow.

The borough representatives we met with as part of our audit generally recognize the need for standardizing the City's vehicle fleet. However, they state that in the short term, this can cause problems, such as incompatibility of the coupling systems of old equipment with the new vehicles they must be used on. They feel that standards will have to be adjusted so that realities specific to the built environment of boroughs are taken into account to a greater extent.

RECOMMENDATION

3.5.4.B. We recommend that the Service du matériel roulant et des ateliers periodically review the definition of standards, in order to ensure that they adequately meet the business units' needs and that they take into account the special characteristics of vehicles and equipment and the contexts in which they are mainly used.

RESPONSE

3.5.4.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.6. Acquisition Process for New Needs

3.6.A. Background and Findings

In a context in which one of the objectives is to maintain the inventory of the fleet of specialized vehicles and equipment in terms of numbers and value of vehicles, and in which the maximum portion of the investment budget provided for this type of acquisition is limited to $2 million/year, mechanisms must be in place to ensure that additional requests are justified and authorized. During this mission, we evaluated the existence of such a process and how it was monitored.

[17] This does not mean that 92% of the current fleet was standardized, but that if the entire fleet had to be replaced, 92% of it, based on its value, would be standardized.

First of all, during our audit work, we noted that an official process for acquiring vehicles for new needs had been established by the SMRA and that business units were informed of it at the annual visits that were made.

According to this process, all additional acquisition requests must be stated on a form designed for this purpose. Business units in particular must specify on the form the desired equipment class, whether it must be fitted, the cost estimate and the reason justifying the request. The form must be signed by the management of the business unit (a Corporate Department or borough) and sent to the SMRA, which receives the requests, compiles them and submits them to the director general for authorization. When additional requests are authorized, the new vehicles to be purchased then follow the same process as described above. They are therefore integrated into the planning process.

An examination of the additional request tracking file revealed that 315 requests that were made on a form had been received at the SMRA since 2017, for an estimated value of $26.7 million. According to the tracking file, the situation illustrated in Table 8 shows that only 10% of the requests, amounting to $5.5 million, were approved and gave rise to an acquisition or were in the planning process. According to the information obtained, for the other requests, 45% of them were made on a justified form and authorized by the borough or department director but did not give rise to an acquisition due to a lack of budget funds. The remaining 45% of the requests received were not sufficiently justified to demonstrate the need for a new acquisition or were not approved by the officer in charge at the business unit.

Table 8 – **Official Process for Authorizing Additional Requests Status of Requests Received**

STATUS OF THE REQUEST	NUMBER OF REQUESTS	VALUE
Total requests approved by the director general	33 (10%)	$5.5 million
Request completed	1 (0.1%)	$0.2 million
Planned requests	15 (4.9%)	$1.4 million
Unplanned requests	17 (5%)	$3.9 million
Total complete requests awaiting approval (complete status)	142 (45%)	$10.8 million
Total incomplete requests or requests remaining to be justified	140 (45%)	$10.4 million
TOTAL REQUESTS RECEIVED	**315**	**$26.7 MILLION**

During our audit work, we examined, for the business units selected, whether additional requests concerning them had been adequately documented, justified and authorized. To do this, we asked them to provide us with any additional requests they had sent to the SMRA and we compared these requests with those appearing in the SMRA's tracking file. This exercise, which was carried out for the business units audited, involved 23 additional requests. Our findings are as follows:

- Some additional justified, authorized request forms were tracked down. They appear in the SMRA's tracking file (7/23);
- Some additional request forms could not be tracked down (10/23) even though the additional requests file listed them. Consequently, we had no proof that there was an actual request and whether it was approved and justified, or unjustified, as the case may be;
- Some additional request forms were tracked down, but were incomplete, because a signature was missing or the proof of need was missing (4/23). We found that there was no follow-up on incomplete requests so that corrective measures could be taken by business units for the purpose of having their requests approved;
- The request tracking file includes one incomplete request that was reformulated (1/23). A duplicate exists; the file should be cleaned up;
- One request sent by a business unit was not compiled in the tracking file (1/23), which does not ensure that this file is complete.

We therefore think that the SMRA should make sure that it keeps additional form requests and should systematically provide business units with feedback to inform them of the status of their requests. We also believe that the file should be updated periodically.

Although a process for approving additional requests was put in place and announced to the business units, we also noted that additions (without replacements) were made outside of the established process. According to the information obtained, there has been a growing number of this type of request since 2017. Table 9 shows acquisitions not involving replacements that have been commissioned, are in the process of being commissioned or have been planned since 2017.

Table 9 – **Acquisition in Excess of Additional Requests that Follow the Process Number and Value (in Millions of Dollars) of Vehicles and Equipment from 2017 to 2019 (9-Month Period)**

PROCESS STEP	2017		2018		2019		TOTAL	
	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE
Commissioning	8	0.3	16	1.9	45	3.6	**69**	**5.8**
Process – specifications/ orders					125	7.6	**125**	**7.6**
In the planning process					59	4.5	**59**	**4.5**
TOTAL							**253**	**$17.9**
ADJUSTMENTS								
Less requests authorized by the director general							**(24)**	**(1.8)**
Less planned requests – in additional request files								**(1.0)**
TOTAL							**229**	**15.1**

According to the information obtained, these are urgent requests that are made by business units or arise from the municipal administration's priorities. They do not follow the official process and are approved by the SMRA. A standard form is not used to justify these requests, and they are not approved by the director general, as provided for by the official process.

We think that the process of acquiring vehicles for new needs should be reviewed, considering that a parallel process exists. The consequence of this situation is an overrun in the budget share provided for this in the TCEP budget according to the Strategy. This affects the credibility of the official process with business units. Meeting one business unit's additional need can delay a vehicle replacement for another business unit and have an impact on the delivery of services. On a large scale, such a practice is likely to delay the bridging of the accumulated gap and affect the maintenance of obsolescence management, even undermine the credibility of the vehicle replacement procedure. In conclusion, this way of doing things does not comply with the Strategy.

RECOMMENDATION

3.6.B. We recommend that the Service du matériel roulant et des ateliers establish a mechanism for monitoring additional acquisition requests to:

- **compile all acquisition requests in a single file so that it can evaluate their monetary value and therefore be able to account for them and periodically re-evaluate the Investment Strategy;**
- **keep proof that managers of the business units concerned have justified and approved these requests;**
- **keep proof that the Direction générale has approved the requests;**
- **provide business units with feedback (approval, reason for refusal or incompleteness);**

in order to create a complete picture of requests originating from the business units.

RESPONSE

3.6.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.7. Vehicle Acquisition Monitoring

3.7.A. Background and Findings

Monitoring Tools

As mentioned above in section 3.2., the Acquisition de véhicules file was developed to plan and monitor the acquisition of vehicles, based on the projected commissioning dates. To this end, tabs were created to track the main dates of each overall step:

- Specifications monitoring:
  - Start and end dates – preparation of specifications;
  - Scheduled tender date;
  - Projected delivery date;
  - Scheduled disbursement date.

- Purchase order monitoring:
  - Purchase order issue date;
  - Projected delivery date;
  - Revised delivery date.

- Operational monitoring of the commissioning of new vehicles:
  - Projected commissioning date;
  - Vehicle acceptance date;
  - Commissioning steps (the actual dates are shown):
    - Inspection date;
    - Lettering date;
    - Date of compliance with specifications;
    - Date of fitting (date sent and date completed);
    - Development of the maintenance record.

This file is filled out manually by several SMRA staff members. It is also used to update a second tracking file, the Replacement Tracking File described in section 3.5.1. This Replacement Tracking File is sent to the business units, not including the SPVM, in order to report on the progress of the vehicle replacement (according to the projected commissioning quarter). It goes without saying that the information must be realistic because it affects the planning of the business units' operations and, by the same token, the delivery of services.

Compliance with Vehicle Commissioning Dates

Based on a sample of 133 vehicles identified for replacement in the business units selected, excluding the SPVM, we evaluated the extent to which the projected commissioning dates had been complied with. In the case of vehicles that were commissioned and delivered to business units, we found that more than half were commissioned after the initially scheduled date.

During our audit work, we asked the SMRA about their knowledge and tracking of the time elapsed between the preparation of technical specifications and the commissioning of vehicles. According to the information obtained, the dates of all the steps are compiled manually in the Acquisition de véhicules file but are not analyzed and compared with objectives concerning timelines. According to the information obtained, indicators were nonetheless compiled up to July 2018, but this practice stopped, following the departure of the manager responsible. These indicators were then evaluated on a monthly basis and covered various internal steps in the vehicle acquisition process: preparation of orders in relation to planning, acceptance of vehicles in relation to planning, commissioning

in relation to planning and acceptance in relation to commissioning. In short, these indicators provide the SMRA with management information enabling them to identify problem areas.

Although each step in the process must be analyzed, we were interested in determining whether the last step in the acquisition process, from the acceptance of a new vehicle to its commissioning, could be problematic from the standpoint of preparation timelines. To do this, we considered, based on InvFlotte, all[18] the vehicles accepted and commissioned after January 1, 2017. We evaluated the number of days between the acceptance date and the commissioning date. We calculated the average time per year per vehicle class and, in cases in which the SMRA had accepted vehicles of the same class for at least two years, not necessarily consecutive years, we examined whether there had been an increase or a decrease in the average time. Table 10 shows the results that we obtained by consolidating the vehicle classes in each category. There was an overall increase in time in all categories except light tool vehicles. For instance, for class 237 (straight truck with a weight of 14,000 to 16,500 lbs, category C), the average time rose from 61 days in 2017 to 112 days in 2019. This average overall increase in the time between the acceptance and the delivery of a vehicle since the beginning of the centralization process can have an impact on ultimate compliance with the delivery due date and therefore on business units' perception of the quality of the service obtained from the SMRA.

Table 10 – **Percentage of Vehicle Classes, Grouped by Category, for Which the Average Time Between Acceptance at the Service du matériel roulant et des ateliers and Commissioning Varied from 2017 to 2019**

CATEGORY	INCREASE	DECREASE
A- Light cars	62.5%	37.5%
B- Light trucks	66.7%	33.3%
C- Heavy trucks	70.0%	30.0%
D- Light tool vehicles	25.0%	75.0%
E- Heavy tool vehicles	80.0%	20.0%
F- Other light equipment	60.0%	40.0%
G- Other heavy equipment	75.0%	25.0%
TOTAL	**64.0%**	**36.0%**

[18] For this exercise, we worked with all vehicles replaced since 2017 (1,043 vehicles) and not solely the vehicles in our sample, because few vehicles in the sample had completed the replacement process.

Considering that the time elapsed between the acceptance and commissioning of vehicles, varied upward for almost all vehicle categories, and that no analysis was conducted by the SMRA, we questioned the SMRA's ability to adequately identify, from the beginning of the process, the expected delivery date (quarter) of the vehicle.

To determine this, we referred to our sample of 133 vehicles[19] to compare changes in projected delivery dates that were entered in the version of the replacement tracking file that was sent to business units when it was preparing for the annual meeting with the SMRA to identify the next vehicles to be replaced.

We found that in 69.3% of cases, there was no projected delivery date for vehicles to be replaced in the first year in which there were entries for them on this list. This proportion drops to 27.5% when vehicles have been in the process for a year, i.e., when they begin the second year of the process. So, after one full year, after the vehicles to be replaced are identified, business units have not yet settled on a projected delivery date for a little more than one vehicle out of four. When a projected year of delivery is available for the first and second year in which a vehicle is on a vehicle replacement tracking sheet, this date remains unchanged in 19.1% of cases and is postponed in only 4.5% of cases. However, if the vehicle has not yet been delivered at the start of the third year, we noted a significant jump in the percentage of postponed delivery dates, surging to 30.4% of cases, and no date that was scheduled for the beginning of the second year is maintained at the beginning of the third year.

In the light of these findings, we conclude that the SMRA is not always able to evaluate, from the time of its presentation to business units, a realistic projected date for the delivery of vehicles to business units (the commissioning date). Later, when business units are informed of these dates, they are disregarded to a large extent and tend to get delayed as time goes on. We also conclude that the SMRA has not established mechanisms to measure its performance with respect to vehicle preparation times, any more than for the other steps in the process. We think that such mechanisms must be established to identify the different timelines, compare them with the projected timelines and take the necessary corrective measures.

[19] The 90 vehicles in our sample belonging to the SPVM could not be considered in this exercise, because the SMRA had only one replacement tracking sheet at the SPVM, for the year 2019 (2019–2021 TCEP).

RECOMMENDATION

3.7.B. We recommend that the Service du matériel roulant et des ateliers analyze the time periods between acceptance dates and commissioning dates (in the past or anticipated) in comparison with what was provided for, in order to make improvements to processes, particularly in the area of establishing the timeline itself or in the area of certain steps in the commissioning process.

RESPONSE

3.7.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

RECOMMENDATION

3.7.C. We recommend that the Service du matériel roulant et des ateliers review the way it plans delivery dates of replacement vehicles, so that as soon as the vehicle to be replaced for a business unit is identified, it can provide the business unit with a realistic estimate of the projected time until it will receive the new vehicle.

RESPONSE

3.7.C. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.8. Accountability

3.8.A. Background and Findings

When a business unit implements the orientations approved by the municipal administration, it must monitor their progress, evaluate them regularly and report on them. Accountability mechanisms must be established within the structure so that informed decisions are made in a timely manner. It was from this perspective that we examined the accountability mechanisms in place to determine whether they help inform decision-makers adequately.

First of all, since the consolidation of activities related to rolling stock management, the SMRA has presented a report to all the business units at two annual meetings, one held in the spring of 2018 and the other in the fall of 2019. At these two meetings, the SMRA presented its achievements, respectively, as follows:

- For the year 2017: the summary of vehicle acquisitions (in terms of the number of vehicles per class), the increase or decrease in the accumulated gap for each vehicle category, the classes of vehicles that were standardized;
- For the first eight months of 2019: the summary of vehicle acquisitions (in terms of the number and value of vehicles received and to be received), the (overall) percentage of the extent to which the accumulated obsolescence gap was bridged for the end of 2019, the classes of vehicles that were standardized.

In October 2018, the SMRA also produced an implementation summary after the rolling stock function was consolidated, when a decision-making record was submitted to city council to justify the renewal of its competency over activities related to rolling stock management. In it, the SMRA stated that it had worked in particular on the standardization and electrification of the vehicle fleet as well as the elimination of obsolescence. We noted that it provided the results achieved in the first two areas, but not in its bridging of the obsolescence gap. In this same summary, the SMRA reported the results of surveys of the business units that were conducted in 2017 and 2018 (e.g., the most appreciated aspects, the aspects that improved the most, the least appreciated aspects). In addition, the SMRA presented the results achieved for 10 indicators established based on the major concerns of the City and the SMRA (e.g., average downtime, number of kilometres travelled between two abnormal breakages). In our opinion, this summary was relevant and useful, but an exercise of this type was not repeated for the year 2019. As a result, since this exercise, the SMRA has not reported on the achievement of objectives and the progress of various initiatives that it had committed to introduce to business units (e.g., reducing acquisition times following clients' requests, pursuing the Strategy to promote the rejuvenation of the fleet and ensuring the availability of vehicles, refining and updating vehicle fleet management data). We believe that a summary of the consolidation should be made on an annual basis, without waiting for a new decision-making record to be produced for the purpose of renewing city council's jurisdiction over management of the rolling stock function.

We also noted that every year, the SMRA reports on its achievements through budget presentations. In the documents presented in 2018 and in 2019, the SMRA reported on progress in its vehicle standardization exercise and its progress in replacing conventional vehicles and equipment with electric models or hybrids. In these documents, the SMRA also stated that it was aiming to eliminate the accumulated obsolescence gap over a four-year period and that it was maintaining the Ten-Year Global Investment Strategy.

In addition to the presentations described in the above paragraphs, we would have expected to find an accountability report reconciling the achievements with the objectives and the targets established, mainly with respect to the implementation of the Vehicle and Equipment Strategy. However, as we noted in section 3.1., the fact that the objectives were not phrased in measurable terms made this exercise difficult. We also expected the SMRA to have demonstrated to authorities the extent to which the expected benefits have been achieved since the consolidation of the rolling stock function. However, to date, the SMRA has not produced an accountability report that consolidates all these elements.

We believe that accountability mechanisms should be established to inform decision-makers about the evolution of the obsolescence of the fleet of specialized vehicles and equipment, about the extent to which the Strategy has been implemented compared with what was provided for when it was approved, about the results achieved by the various initiatives adopted and finally about the extent to which the expected benefits have been achieved since the consolidation of the rolling stock function. Clearly, this accountability reporting should bring to light the consequences for the implementation of the Strategy, if any, of simultaneously pursuing other objectives, such as the standardization and acquisition of electric vehicles.

RECOMMENDATION

3.8.B. We recommend that the Service du matériel roulant et des ateliers establish regular accountability reporting mechanisms on the evolution of the obsolescence of the vehicle and equipment fleet, on the extent to which the Investment Strategy has been implemented, on the results achieved by the various initiatives adopted and on the extent to which the expected benefits have been achieved since the consolidation of the rolling stock function, so that decision-makers can make informed decisions.

RESPONSE

3.8.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.9. Evaluation of the Vehicle and Equipment Replacement Method Based on Best Practices

3.9.1. Data Availability

3.9.1.A. Background and Findings

In order to propose an approach for managing the obsolescence of a vehicle fleet based on industry best practices, it is necessary to have, in addition to a known inventory, a certain amount of data, such as:

- Age of the vehicle;
- Fuel cost (or fuel consumption);
- Maintenance and repair costs;
- Use of the vehicle, i.e., total distance travelled;
- Purchase cost of the vehicle;
- General condition of the vehicle.

As shown in Table 11, with the exception of the general condition of the vehicle and its fuel costs, the other data are theoretically available in one of the databases or tools used by the SMRA. The lack of information on vehicle fuel consumption costs can be offset by knowledge of the use of the vehicle (kilometres travelled).

Table 11 – **Types of Data Appearing in Databases and Tools of the Service du matériel roulant et des ateliers for Vehicle Management**

DATA	INVFLOTTE	MIR	COENCORP	MAXIMO (SERVICE DE POLICE DE LA VILLE DE MONTRÉAL)
Age of the vehicle	Indirectly[a]	Indirectly[a]	No	Yes
Fuel cost	No	No	No	No
Maintenance and repair costs	No	Yes	No	Yes
Kilometres travelled	No	Yes	Yes	Yes
Purchase cost or replacement cost of the vehicle	Yes	No	No	Yes
General condition of the vehicle	No	No	No	No

[a] The year of commissioning of the vehicle is known information; it is therefore possible to evaluate its age.

Starting from the idea that this data should be collected, we sought to determine the extent to which such data was available for each vehicle in the City's vehicle fleet and how reliable this data could be. To do this, we checked for the presence of these values for the 223 vehicles in our sample. As a result of this analysis, we noted that:

- the age of a vehicle is available by calculation based on its year of manufacture or commissioning for 99,6% of the sample;
- a maintenance and repair cost is available for 89.2% of the sample. However, we noted that:
  - several years may elapse with no maintenance and repair costs for a vehicle; maintenance work should be done on vehicles at least once a year;
  - mechanics' hourly rate was adjusted upward or downward from the average rate that the SMRA claims to use to reflect differences in the types of repair work done in various vehicle classes. This therefore affects the actual maintenance or repair cost of a vehicle.

- the kilometres travelled by vehicles is available for 140 out of the 170 vehicles that are still active in our sample, which represents 82.3% of the active vehicles in the sample; here is the breakdown:
  - Data from MAXIMO for SPVM vehicles is collected once a month in each SPVM unit, and the odometer value is compared with the value for the previous month for the same vehicle to control the quality of the reading;
  - Data from MIR consists of odometer readings taken by mechanics when they do a repair or maintenance job. According to the SMRA, no controls are performed on these values entered in the shop;
  - The kilometres travelled can also be viewed in the database associated with CoenCorp. However, according to the SMRA, no controls are performed on the odometer value that a vehicle user can enter when refuelling at one of the City's fuel stations. Furthermore, there is no corroboration between odometer values entered at the pump and those entered in the shop.
- The actual vehicle purchase price is available for only 65.5% of the sample.

Based on our sample, we found the data on both maintenance and repair costs and vehicle and equipment use to be of poor quality. We think that mechanisms must be established as soon as possible to enable the SMRA to have available, reliable data for its entire vehicle and equipment fleet.

RECOMMENDATION

3.9.1.B. We recommend that the Service du matériel roulant et des ateliers establish regulated procedures to perform checks periodically on new data entered in the different databases used to manage the City's vehicle fleet, in order to ensure a high level of data quality and as a result be able to manage the fleet based on credible, reliable data.

RESPONSE

3.9.1.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

3.9.2. Best Practices in Vehicle Fleet Obsolescence Management

3.9.2.A. Background and Findings

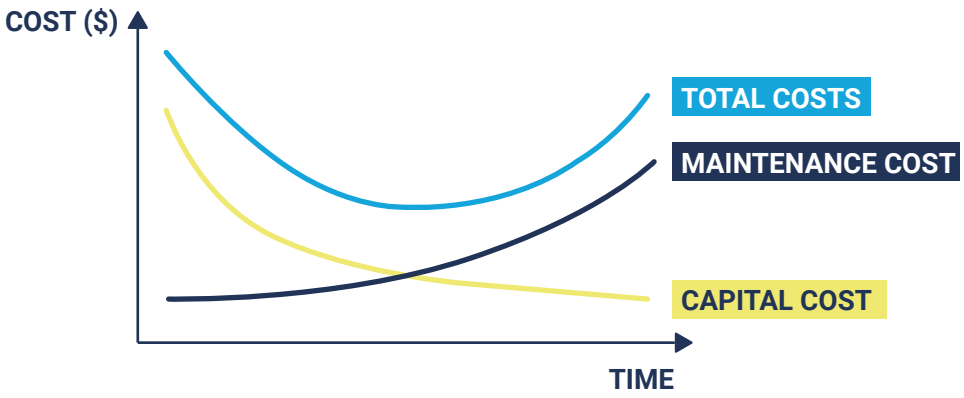
To show the importance of undertaking a reflection on the obsolescence management approach, after three years had elapsed since the consolidation of the activities related to the rolling stock function, we examined what was being done in terms of best practices.

Best practices mean that vehicle replacement is supported by an economic analysis that takes vehicle use into account. In principle, an economic life analysis consists in managing vehicles' life cycle by taking into account all expenses over the service life of the vehicle. This essentially consists in monitoring expenses associated with the capital cost on the one hand and the maintenance cost on the other hand:

- The capital cost takes into account acquisition and financing costs as well as the vehicle resale value;
- The maintenance cost includes all expenses associated with maintenance and repair of the vehicle. These costs include both expenses paid to external suppliers and direct expenses arising from work carried out in the City's garages. These expenses include the cost of parts and the cost of labour.

Figure 1 illustrates the fluctuation of expenses over time.

Figure 1 – **Fluctuation of Expenses**



Taking all costs into account makes it possible to determine a suitable replacement time.

Using this approach, vehicle replacement must be considered when the sum of the capital cost and the maintenance cost is at its lowest, i.e., in the dip in the total costs curve. As shown in Figure 1, this curve is the total of the curve representing the capital cost plus the curve representing the maintenance cost.

According to best practices, the evaluation of overall costs takes the use of a vehicle into account. This use is measured in kilometres travelled or in engine hours; costs are put in the form of a cost/km ratio or cost/engine hour. The costs retained were all the operating costs for a year divided by the corresponding use. Taking use into account helps put the information collected in perspective and thereby obtain an objective picture of the expenses incurred. For instance, two identical vehicles of the same year that cost $10,000 each in maintenance work can be distinguished if their respective use is taken into account. If one of these two vehicles has travelled 1,000 km a year and the other has travelled 500 km a year, their respective costs, when use is taken into account, will be $10/km and $20/km, respectively, or twice as expensive to operate for the second vehicle.

As stated throughout this report, the SMRA, excluding the SPVM, established its vehicle replacement criteria based on the age of the vehicles, without regard to their use. The SMRA considers a vehicle to have reached the end of its useful life when it has reached a predefined number of years since its commissioning (theoretical service life). In addition, the SMRA does not make any distinction among the various types of purposes for similar vehicles. We can therefore say that 10-wheel trucks used for a specific type of work will not be evaluated differently from all the City's 10-wheel trucks, all of which have an established service life of 10 years. By not considering the purpose of the vehicle, the SMRA cannot adjust the replacement age established for each sector of activity. Furthermore, the consequence of not taking use into account is that a vehicle that has travelled a low number of kilometres but has reached the end of its theoretical service life will be replaced, while other vehicles with a higher number of kilometres travelled and greater operating costs will not be considered for replacement.

As part of our audit work, we wanted to assess whether the replacement methods used by the SMRA, excluding vehicles used by the SPVM, could be used to identify the highest-cost vehicles while taking their use into consideration. At this point, it should be noted that we obtained from the SMRA data extractions for vehicle classes that we targeted, those with:

- the most active vehicles;
- the most obsolete vehicles;
- the highest maintenance costs;
- the greatest total value;
- the greatest obsolescence value.

Each of the target classes, clearly, had to have vehicle replacements. In all, 14 classes were selected for the purposes of our analysis.

For each class selected, the maintenance costs of vehicles were extracted using the MIR software, and kilometres travelled and hours of use were extracted using the Fuel Management System (COENCORP). The extracted data covered two full years, from October 2017 to September 2019. At this point, it should be noted that we used data available from the SMRA, and that it is the same data that officials would use to make decisions.

For the classes selected, all vehicles and equipment were successively analyzed so that they could be divided according to three separate comparison criteria, presented in Table 12.

Table 12 – **Analysis Criteria for the Vehicle and Equipment Classes Selected**

CRITERION	DESCRIPTION	NUMBER OF CORRESPONDING VEHICLES
1) Scrapping-Sample (replacement standard of the Service du matériel roulant et des ateliers).	Vehicles replaced and scrapped based on the end of useful life established by the Service du matériel roulant et des ateliers.	124 out of 197 vehicles (63%) had valid data for the analysis.
2) Vehicles are operational and have reached the end of their useful life.	Vehicles that have reached the end of their useful life, but are still operational and in service.	983 out of 1,457 vehicles (67%) had valid data for the analysis.
3) Vehicles are operational but have not yet reached the end of their useful life.	Vehicles are active and operational and have not reached the end of their useful life.	

It should be noted that data extracted from the systems showed significant deficiencies in the areas of consistency and reliability, which confirms the findings we made previously. For this reason, for all classes retained, vehicles and equipment could not be analyzed in their entirety due to the lack of available data.

The main reasons for data not being retained for the purposes of our analysis are as follows:

- Vehicles for which no data was provided on maintenance costs and kilometres travelled in their last two years of service;
- Vehicles for which data was provided on kilometres travelled, but not on maintenance costs;
- Vehicles for which data was provided on maintenance costs, but for which no data was provided on kilometres travelled or valid machine-hours.

Nonetheless, for the classes selected, 63% of vehicles that were replaced for the targeted period were analyzed (124 out of 197 vehicles), through a comparison with operational vehicles and equipment in these same classes.

It should also be noted that in comparing the maintenance and repair costs of different vehicles, the hourly rate used for the purposes of our analysis was harmonized for all work orders. The number of hours worked per work order was accounted for at a single hourly rate of $97/h, which is the SMRA's current effective rate. In addition, data on kilometres travelled and machine-hours used for the purposes of our analysis comes from the CoenCorp fuel management system. We conducted several analyses with data from the fuel system for each vehicle considered to be assured of the quality of this data and that it represents the actual use of these vehicles.

As illustrated in Table 13, the results of our analysis for the targeted classes and whose use is measured in kilometres travelled are as follows:

- The average age of vehicles that were replaced in accordance with SMRA standards exceeds its useful life, for five of the six vehicle classes, which can be explained, at least in part, by accumulated obsolescence, which the SMRA wants to reduce within four years;
- The average annual cost per km travelled of classes of vehicles that are still operational and have reached the end of their useful life is higher for four of the six classes in which vehicles have been replaced. Based on the sample, this means that replaced vehicles cost less to use than vehicles that are still in service;
- The average annual cost per km travelled of subcompact cars (class 134) that were replaced is $1,808, while the average annual cost per km travelled of subcompact cars that are still operational and have reached the end of their useful life is $3,819. The average age of both of these is identical: 11.1 years. The cost of vehicles in this class that are still in service and have reached the end of their useful life exceeds the cost of replaced vehicles by more than 111%;
- The average annual cost per km travelled of the three vans (class 179) that were replaced and for which valid data exists is only $578, while the average annual cost per km travelled of the 80 vans that are still operational and have reached the end of their useful life is $3,071. The cost of vehicles that are still in service and have reached the end of their useful life exceeds the cost of replaced vehicles by more than 421%.

As illustrated in Table 14, the results of our analysis for the targeted classes and whose use is measured in engine hours are as follows:

- The average age of vehicles that are still operational and have reached the end of their useful life is 13.5 years, compared with the average age of replaced vehicles based on SMRA standards, which is 10.1 years;
- The average annual cost per hour of classes of vehicles that are still operational and have reached the end of their useful life is higher than that of replaced vehicles.

Table 13 – **Analysis Conducted by the Bureau du vérificateur général Results – Maintenance Costs Based on Average Annual Kilometres Travelled for Targeted Vehicle and Equipment Classes**

Legend: The results in red are the highest costs for the three criteria analyzed for each type of vehicle
The results in green are the lowest costs for each criterion for each type of vehicle

			CRITERIA									
			SCRAPPING SAMPLE (SMRA REPLACEMENT STANDARD)			VEHICLE STILL OPERATIONAL END OF SERVICE LIFE REACHED			OPERATIONAL AND END OF SERVICE LIFE NOT YET REACHED			
STATUS	DESCRIPTION OF TYPES OF VEHICLES BY CLASS	USEFUL LIFE SMRA (YEARS)	NUMBER	AVERAGE AGE (YEARS)	AVERAGE ANNUAL COST/KM	NUMBER	AVERAGE AGE (YEARS)	AVERAGE ANNUAL COST/KM	NUMBER	AVERAGE AGE (YEARS)	AVERAGE ANNUAL COST/KM	REFERENCE: AVERAGE ANNUAL KM TRAVELLED PER VEHICLE TYPE
Classes with the greatest number of active vehicles	134-4-CYLINDER 4-DOOR SUBCOMPACT CAR	10	61	11.1	$1,808	76	11.1	$3,819	252	4.7	$1,414	4,408
	176-6-CYLINDER WINDOW MINIVAN	10	16	11.9	$2,024	27	10.1	$3,570	58	4.2	$1,440	4,420
	212-VAN 5001-10000 LB EQUIPPED CABIN	10	18	12.7	$6,229	97	11.8	$5,522	221	4.2	$4,439	7,101
Class with most obsolete vehicles	179-8-CYLINDER NO-WINDOW MINIVAN	10	3	14.0	$578*	80	12.5	$3,071	26	7.1	$1,530	2,134
Classes with vehicles with significant maintenance costs	316-COMPACTOR TRUCK 20-23.9 CU.YD	10	8	13.0	$20,866	8	13.4	$26,754	32	3.3	$18,872	10,710
	317-COMPACTOR TRUCK 24-27.9 CU.YD	10	11	7.7	$28,607	6	10.2	$8,154	20	3.9	$29,371	12,372
TOTAL			**117**			**294**			**609**			
OVERALL AVERAGE				**11.4**	**$6,309**		**11.7**	**$4,867**		**4.5**	**$4,355**	

* These three vehicles belong to the Service de la gestion et de la planification immobilière and the Jardin botanique de Montréal, two departments that use vehicles differently from the other business units (e.g., the Montréal Botanical Garden does not operate its vehicles very much, while vehicles operated by the Service de la gestion et de la planification immobilière travel three to four times more kilometres than the average).

Table 14 – **Analysis Conducted by the Bureau du vérificateur général**
Results – Maintenance Costs Based on Annual Engine Hours for Targeted Vehicle and Equipment Classes

Legend: The results in red are the highest costs for the three criteria analyzed for each type of vehicle
The results in green are the lowest costs for each criterion for each type of vehicle

			CRITERIA									
			SCRAPPING SAMPLE (SMRA REPLACEMENT STANDARD)			VEHICLE STILL OPERATIONAL END OF SERVICE LIFE REACHED			OPERATIONAL AND END OF SERVICE LIFE NOT YET REACHED			
STATUS	DESCRIPTION OF TYPES OF VEHICLES IN CLASS	USEFUL LIFE SMRA (YEARS)	NUMBER	AVERAGE AGE (YEARS)	AVERAGE ANNUAL COST/HRS	NUMBER	AVERAGE AGE (YEARS)	AVERAGE ANNUAL COST/HRS	NUMBER	AVERAGE AGE (YEARS)	AVERAGE ANNUAL COST/HRS	REFERENCE: AVERAGE ANNUAL HOURS BY VEHICLE TYPE
Class with the greatest total value	437-WHEEL LOADER 3.00 – 3.99 CU.YD	12	3	10.0	$21,218	1	12.0	$22,256	77	5.0	$17,094	1,184
Classes with vehicles with significant maintenance costs	825-TRACTOR SNOWBLOWER	15	4	10.3	$12,459	1	15.0	$14,922	1	7.0	$5,779	321
TOTAL			**7**			**2**			**78**			
OVERALL AVERAGE				**10.1**	**$16,213**		**13.5**	**$18,589**		**5.0**	**$16,949**	

In conclusion, our analysis helped show that for some targeted classes, replacement decisions were not always the most economical ones. To achieve this, the Bureau du vérificateur général had to do several data extractions and take several corroborative measures, with the support of the SMRA. Furthermore, a large percentage of vehicles were not analyzed because valid data was missing, which prevented us from having a complete picture. At the time of our audit work, the SMRA said that it did not conduct this type of analysis, which is nonetheless relevant for the purpose of managing a fleet of nearly 8,700 vehicles and equipment.

To propose an approach to managing the obsolescence of a vehicle fleet based on industry best practices, we think that the City must above all improve the quality of the data it collects. Otherwise, such an obsolescence evaluation cannot be done on all vehicles and might not reflect the reality because of the poor quality of the data used.

In addition, the fact that vehicle and equipment use and maintenance costs are not taken into account in the replacement process prevents the SMRA from systematically targeting the most expensive vehicles to be replaced. Consequently, vehicles that cost less to use are replaced, while other, more expensive vehicles are kept and used. We think that mechanisms should be established to enable the SMRA to identify vehicles to be replaced while taking into account their use, all associated costs and their intended purpose.

RECOMMENDATION

3.9.2.B. We recommend that the Service du matériel roulant et des ateliers establish mechanisms for identifying vehicles to be replaced while taking into account their use, all associated costs and their intended purpose, in order to promote informed decision-making.

RESPONSE

3.9.2.B. *The audit report was issued to the business unit concerned. The business unit agrees with the recommendation. The Bureau du vérificateur général has asked the business unit to establish an action plan for implementing this recommendation by June 1, 2020.*

4. CONCLUSION

In 2016, city council decided to consolidate activities related to the rolling stock function by declaring that it had competency over them for a two-year period (from January 1, 2017, to December 31, 2018); this decision was renewed for three additional years, up to December 31, 2021. This decision represents a major challenge in a municipal organization consisting of 19 boroughs and several central departments that are required to provide a broad range of services to citizens. This was intended to help improve the efficiency of the Ville de Montréal (the City) in the rolling stock function. The main objectives of this restructuring were, on the one hand, to reduce the obsolescence of the vehicle and equipment fleet in order to improve the delivery of services, thereby reducing maintenance and repair costs, and on the other hand, to keep the number and value of vehicles held by the City at a stable level in order to limit operating costs.

An Investment Strategy (the Strategy) was approved by the director general in early 2018 to establish the investment needs for the next 10 years. When this Strategy was established, the fleet had close to 7,400 vehicles and equipment with a total replacement value of $571 million and the accumulated obsolescence gap was established at $67.3 million. The chosen scenario called for investment needs required to bridge the accumulated gap over four years (from 2018 to 2021), to replace vehicles that have already reached the end of their service life according to the process in place and to limit the acquisition of vehicles to meet new needs.

Right from the first year, new data on the number of vehicles and their obsolescence led the City to revise the accumulated obsolescence gap upward to $83 million. The preferred scenario still involved bridging this gap over a four-year period.

Since the Strategy was approved, the required budgets have played a prominent part. However, the accumulated obsolescence gap is not being reduced at the expected rate and vehicles being acquired to meet new needs are higher than anticipated.

Considering the size of the vehicle and equipment fleet to be managed (close to 8,700 vehicles at the time of our audit), and considering the business units' need for reliable vehicles in order to provide the expected services, our audit work led us to conclude that the management practices in place are not sufficient to ensure that objectives are being achieved and that users' needs are being met. With this in mind, in order to remedy these problems, we recommend that the City:

- formulate objectives in measurable terms for all the priorities that contribute to implementing the Vehicle Fleet Management Strategy;
- conduct an exercise to ensure consistency among the vehicle entries appearing in the different databases (e.g., InvFlotte, MIR, MAXIMO for the Service de police de la Ville de Montréal (SPVM)) as well as vehicles that are actually in the field;
- update the Strategy to take into account new data on the number of vehicles, results obtained or new objectives;
- ensure compliance with the Strategy in the interest of achieving the objectives according to the planned schedule;
- keep documents supporting any revision of the Strategy;
- regularly evaluate the Strategy implementation;
- establish monitoring and control mechanisms for vehicle acquisitions (to meet new needs) in order to comply with the Strategy;
- analyze the actual commissioning timelines so that the necessary corrective measures can be taken;
- establish regular accountability reporting mechanisms for providing information on progress in the implementation of the Strategy and the extent to which the expected benefits have been achieved since the consolidation of activities related to the rolling stock function;
- establish procedures for periodically performing controls on data entered in the different databases used for vehicle fleet management.

The Strategy is a response to an orientation of the municipal administration. Even though efforts have been undertaken up until now to bridge the accumulated obsolescence gap, we think that, at the time of our audit work, the City was not aware of the true extent to which the Strategy has been implemented, according to the projected scenario. To do this, we believe that first and foremost, the availability and quality of the data collected for the entire vehicle and equipment fleet must be improved as soon as possible. We also believe that the City must establish, just as best practices dictate, mechanisms for identifying vehicles to be replaced by taking into account their use, all the associated costs and their purpose in order to make the best management decisions, which is not the case at present.

5. APPENDIX

5.1. Objective and Evaluation Criteria

Objective

Evaluate the extent to which the City has established an Investment Strategy for the upgrading (bridging the obsolescence gap) and optimal maintenance of the vehicle and equipment fleet while meeting users' needs.

Evaluation criteria

- Roles and responsibilities in the areas of acquisition and replacement of rolling stock are clearly documented and communicated.
- An inventory of the City's vehicles and equipment is kept up to date and can be used to adequately monitor changes in the fleet of specialized vehicles and equipment used by the City.
- Persons in charge have all the relevant data they need on the fleet of specialized vehicles and equipment to manage their replacement effectively and efficiently.
- An Obsolescence Management Strategy based on technical and economic criteria is supported by adequate investment budgets and is implemented.
- Mechanisms exist to identify and evaluate users' needs.
- An annual planning process for acquiring specialized vehicles and equipment is in place in accordance with the Strategy established and is monitored to ensure that it is implemented as planned.
- Accountability mechanisms are in place to keep decision-makers informed on rolling stock management.