Winnipeg | Audit

Automatic Vehicle Locator Investigation

June 2021

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UPDATED REPORT

The Automatic Vehicle Locator Investigation report was received as information by Winnipeg City Council on September 29, 2021. In an appendix, under the heading Approach and Criteria, the report contained a statement that the work was completed in compliance with Generally Accepted Government Auditing Standards. This was an incorrect statement. The work performed in relation to this project does not constitute an audit conducted in accordance with Generally Accepted Government Auditing Standards (GAGAS). The statement has been revised and is the reason for the updated report.

The Audit Department wishes to assure the reader that the findings, conclusions and subsequent recommendations in the report are unchanged, they remain well supported by the evidence.

INVESTIGATION SERVICES

The Audit Department provides investigation services based on information identified in reports submitted through the Fraud and Waste Hotline, audit projects, Council, Public Service or resident's requests.

The Fraud and Waste Hotline is a confidential and anonymous service accessible to everyone to make reports 24/7/365. We review every report that is received and will investigate when appropriate supporting information is provided.

A strong anonymous fraud and waste reporting system is one of the best mechanisms available for uncovering wrongdoing. There are many benefits to the City in having an effective reporting system, most importantly being the early detection and/or prevention of harmful misconduct. Other non-quantifiable benefits are strengthened internal controls, improved policies and procedures and increased operational efficiencies.

The City Auditor takes all fraud and waste reports seriously. Comprehensive investigations help to maintain public confidence; the public needs to feel confident that the City is committed to taking appropriate steps to address the fraud and waste allegations.

This is not an audit as defined by Generally Accepted Government Auditing Standards, but does conform to Audit Department standards for independence, objectivity and quality. The Audit Department performed the engagement following the Department's internal Audit Manual and Hotline Report Handling Procedures.

INVESTIGATION BACKGROUND

The focus of the 2021 Audit Plan includes a number of investigations. The investigations are based on the areas identified as high-priority through preliminary examinations of previous year's Fraud and Waste Hotline reports.

The Fraud and Waste Hotline received several reports regarding use of City vehicles. The reports included allegations regarding existing processes related to vehicle use, insufficient oversight, and operational safety concerns. During the preliminary stages, we found inconsistencies in how and when the City's automatic vehicle locator (AVL) technology was used, and indicators of data quality issues in the City's AVL records. Given these preliminary observations, the scope of work was revised to include the implementation and oversight of the AVL program.

CONCLUSIONS

Responsibility for AVL implementation was delegated to the Fleet Management Agency, but authority for AVL use was delegated to Departments with limited corporate oversight;

Absence of citywide minimum standards, and the addition of a LOU contributed to unclear understandings of the acceptable use of AVL information;

97% of AVL devices did not have an idle time threshold set to prompt notification;

22% of AVL devices did not have a speed notification set, and 76% operated with the default setting of 105kph;

40% of AVL devices did not have an engine RPM notification set, and 60% operated with the default setting;

The AVL system that was implemented did not meet the needs of all departments expected to use it;

The City has spent approximately $1,870,000 on the AVL program, but has made minimal progress towards achieving intended benefits.

The AVL program was implemented without a corporate program 'owner' with authority to provide oversight of AVL use in departments and ensure accountability for outcomes. This contributed to inconsistent use among departments and missed opportunities to increase fleet efficiencies. The City can improve program oversight by designating a corporate 'owner' with authority to enable department accountability for AVL outcomes.

The City lacked an AVL policy to define roles and responsibilities and set minimum standards for AVL use and day-to-day monitoring of vehicle and equipment performance. This contributed to a lack of clarity among AVL users which was a factor for ineffective AVL settings and infrequent access to AVL data for performance monitoring.

Inconsistent access and monitoring of AVL performance data was also influenced by a lack of clarity stemming from a Letter of Understanding (LOU) between the City and a labour union, as well as initial technical issues with the vendor's AVL web portal. Technical issues with the website have since been addressed, but the LOU has remained in effect.

During the period of this investigation two Administrative Standards were finalized. Each include relevant information and guidance for the AVL program, but can be improved with the addition of minimum standards for AVL information use and monitoring of AVL performance data.

The current AVL system was intended to be a standard, citywide application; however, the system that was implemented did not have the functionality to meet the needs of all departments expected to use it. As a result, the City was not able to use the AVL tool to achieve planned benefits, including increased service optimization and decreased expenditures. The current AVL system may be customizable to meet specific needs of various departments, but that had not yet been determined at the time of this investigation. Department stakeholders, comprised of operational and technical representatives, should be established to define specific needs, and to re-evaluate the suitability of the current system to meet those needs.

We found that there has been minimal progress towards the AVL program goals of reduced idle time and increased efficiency of vehicle and resource deployment. The City's return of investment made in the program had not yet been realized at the time of this investigation.

INDEPENDENCE

The Audit Department team members selected for the investigation did not have any conflict of interest related to the project's subject matter.

ACKNOWLEDGEMENT

The Audit Department wants to extend its appreciation to management and staff within the Public Works Department, Winnipeg Fleet Management Agency, Winnipeg Animal Services Agency, Winnipeg Transit, Winnipeg Parking Authority, and the Winnipeg Fire Paramedic Service for their assistance and cooperation.



Bryan Mansky
City Auditor

June 30, 2021
Date

OVERVIEW

1.1 What are Automatic Vehicle Locators?

- An automatic vehicle locator (AVL) is a small device installed on a physical asset, typically a vehicle, which enables the collection and communication of an asset's location and performance data. Information is transmitted from each equipped vehicle to a satellite receiver, which in turn, transmits to specialized software to be accessed by authorized users.
- Information produced by an AVL device allows the opportunity to track and manage individual vehicles and/or an entire fleet of vehicles. Sophisticated AVL systems can provide detailed information about specific vehicle activities, such as the position of a snowplow blade and the amount of material applied to a section of road. Information that is collected and communicated by AVL devices can be used to inform adjustments to improve the efficiency and effectiveness of vehicle deployment and use.
- The AVL system currently used by the City is able to provide near real time data on vehicle performance metrics, such as speed, hard starts/stops, engine idle time, entry/exit from designated areas, and current location.
- Each AVL device can be set to record data each time the vehicle's engine is turned on, or the device can be set to hibernation mode, in which no data is collected. Hibernation mode is often applied to seasonal assets that are not used for extended periods. AVL device settings may be changed by Winnipeg Fleet Management Agency (WFMA) once a request, or notice for such change has been provided by a user department.
- City employees who have been assigned access may log onto the AVL platform that is maintained by the contracted vendor, DataTrail. The AVL platform is a secure website that collects, organizes and displays performance data received from each AVL device.
- Designated City employees have 1 of 3 levels of access to AVL data, each with a different set of parameters. Key differences in the level of access relate to what information can be accessed, the type of report that can be generated, establishing report schedules, and the ability to administer end user permissions and monitoring assignments.
- AVL data can be accessed as needed, set to an automatic reporting schedule, and/or as an instant notification of specific vehicle events, such as excessive speed, and entry/exit from a designated zone.
- There are City departments that use alternative AVL system, or a combination of the citywide AVL system, and an alternative AVL system that is customized to meet unique operational needs. We obtained an understanding of the capabilities of alternative AVL systems used by the City through discussions with department representatives, but did not assess capabilities further.

1.2 AVL Program History

- In 2006, Council adopted the City of Winnipeg Climate Change Action Plan. In this plan, the City committed to developing and issuing an administrative directive regarding unnecessary vehicle idling.
- In 2008, the City's Executive Policy Committee passed a motion directing the Public Service to develop a Green Vehicle Plan, which included strategies to reduce fuel consumption and emissions.
- In 2010, City Council approved the Green Fleet Plan aimed at reducing fleet related greenhouse gas emissions by 17.65% from 1998 levels by 2019.

- At that time, the City did not have a means of monitoring the engine idle time of the entire vehicle fleet, as there were various GPS/AVL systems used by departments, with varying degrees of functionality. A 2013 AVL Project Report noted that a standardized, citywide AVL tool would enable the collection of data used to determine idling time. It was estimated that vehicle idle time accounted for 30% of the City's annual fuel use, and offered the best opportunity for cost savings.
- It was anticipated that with the adoption of a standardized, citywide AVL system, Winnipeg Fleet Management Agency (WFMA) would be able to implement the idle reduction objective of the Green Fleet Plan, through cooperative enforcement of an idle reduction policy limiting the amount of time a City vehicle or piece of equipment can idle. This, in turn, was expected to enable a reduction in annual fuel use by approximately 3%, and reduce the City's greenhouse gas emissions by approximately 2,205 tonnes annually by 2017. A standard, citywide AVL system was also expected to provide additional benefits that could enable operational efficiencies, including:
    - More efficient route mapping to lower fuel and maintenance costs, and more accurate reporting of fuel usage, distances traveled, odometer and idle time to optimize fleet utilization.
    - An opportunity for Public Works and Water and Waste to use the AVL system to improve application strategies for salt and sand in winter months, incident reporting when auxiliary equipment, such as spreaders and sprayers are used, and unit tracking to respond quickly to water main breaks;
    - An opportunity for Winnipeg Fire Paramedic Service to use the AVL system to improve response times by dispatching the nearest available vehicle, and a potential future benefit of synchronizing traffic lights with responding emergency vehicles;
    - Vehicle statistics to improve preventative maintenance schedules, and potential to explore additional features allowing the AVL device to connect with on-board diagnostic equipment to assist with troubleshooting, repair and maintenance; and
    - A means for asset based tracking and locating of equipment to aid in loss prevention of City equipment.
- We were informed that prior to 2013, the City's Senior Management Team directed WFMA to acquire an AVL system to be used by all departments. A Request for Proposals was initiated, and in 2013, a short list of bidding vendors was selected for a trial of AVL systems.
- At the conclusion of the AVL trial period, the vendor, DataTrail, was selected to be the supplier for a citywide AVL program, and installation of DataTrail AVL devices on City assets began in 2015.
- We were informed that the majority of AVL device installations was completed in 2018, and this is when citywide vehicle idle time statistics began to be compiled.
- As of March 2021, there were approximately 2,151 DataTrail AVL devices installed on City assets that were tracked by the contractor.

AVL Implementation Milestones



1.3 AVL Costs

- The approximate total value of the awarded contracts for the citywide AVL system between 2013 and 2020 was $5,091,000, including taxes.
- The approximate total expenditures for the citywide AVL program between January 1, 2014 and January 31, 2021 was $1,870,000. This was approximately $3,221,000 less than the planned expenditures.
- We were informed factors for the difference included:
    - Approximately 4 years of planned monitoring costs not expended due to delayed program implementation;
    - An overestimate of the number of vehicles/equipment requiring an AVL device and monitoring. We were informed that approximately 300 AVL devices were installed on vehicles that were subsequently deemed exempt from the program and therefore not incurring monitoring costs;
    - The awarded contracts included planned costs for sim cards, but those expenditures have been paid to a 3rd party service provider;
    - The planned costs for integration of City equipment systems with the AVL system had not yet occurred;
- We noted that the cost for the factors identified for lower than planned expenditures account for approximately $1,527,000; however, this amount still leaves a variance of $1,693,000 between authorized and actual expenditures.
- The most recent contract with the current vendor was awarded in December 2020. This was the second of a maximum of five annual contract extensions. This extension was valued at $360,000 for the period of 2021.
- The cost of an AVL device ranges from approximately $150 to $250 per unit, depending on the model and the supporting hardware; some AVL devices are ‘plug and play’, while others are intended to be a permanent installation.
- WFMA receives a monthly invoice from the vendor for monitoring fees, and WFMA then bills each of the user departments to recover these costs with no markup applied. Each department is also responsible for the cost of a SIM card that is inserted into each AVL device used under their care. A SIM card is expected to last for the duration of the life of an AVL device, but must be replaced if the internet service provider is changed. At the time of this report, no change had been made to the internet service provider.
- The majority of AVL devices were installed and collecting data by January 2018. The approximate average monthly cost for citywide monitoring between January 2018 and March 2021 was $23,400.
- The AVL contractor does not charge monitoring fees for AVL devices set to hibernation mode (inactive). We were informed that:
    - Departments will notify WFMA of AVL devices to be switched to hibernation mode;
    - WFMA will update the status of these units in an internal Fleet Management System, which will automatically update the AVL contractor’s tracking system.
    - Monitoring charges for units in hibernation mode are stopped on the date the hibernation mode is entered into the FMS system.
    - WFMA staff reconcile the contractor invoice with the amount that WFMA bills departments for vehicles. If there is an overbill related to a charge for a unit in hibernation mode, WFMA will inform the contractor. The contractor will provide a credit on the following invoice, which WFMA applies to the applicable department charges.

1.4 Role of Winnipeg Fleet Management Agency

- The WFMA is a Special Operating Agency that has recently been realigned to report within the Department of Public Works. WFMA manages and maintains a fleet of approximately 2,300 vehicles and specialty equipment for the City.
- WFMA is responsible for procurement, distribution, and maintenance/repair of non-emergency vehicles and specialty equipment to City departments. The departments receiving these vehicles and specialty equipment are responsible for determining how best to deploy those assets.
- As the Agency with responsibilities related to the City's fleet, WFMA has a central role in the AVL program. WFMA staff administer the AVL contract, and are the primary contact between the City and the AVL vendor, DataTrail. WFMA acquires, installs, or arranges installation, and maintains an inventory of AVL devices. WFMA staff have also maintained the City's AVL records.
- WFMA has taken steps to support the success of the citywide AVL program, including initiating and facilitating discussions between departments and the AVL vendor, assisting with training for City employees, and through ongoing summary reporting of AVL performance measurements to departments. WFMA has maintained the citywide AVL program without delegated authority to manage how and when AVL devices are used, and without the benefit of supplemental resources to support their AVL-related activities.

1.5 City Departments Involved in the AVL Program

- Currently, there are various GPS-based AVL systems used by different City departments. This is because some departments have unique operational needs requiring specialization, such as those for first responders.
- As of January 2021, most City departments operated a fleet vehicle equipped with a DataTrail AVL device, including:
    - Animal Services
    - Assessment & Taxation
    - Community Services
    - Corporate Services
    - Fire Paramedic Service (light fleet only)
    - Fleet Management Agency
    - Innovation, Transformation & Technology
    - Parking Authority
    - Planning, Property & Development
    - Public Works
    - Transit (light fleet only)
    - Water & Waste

1.6 AVL Data

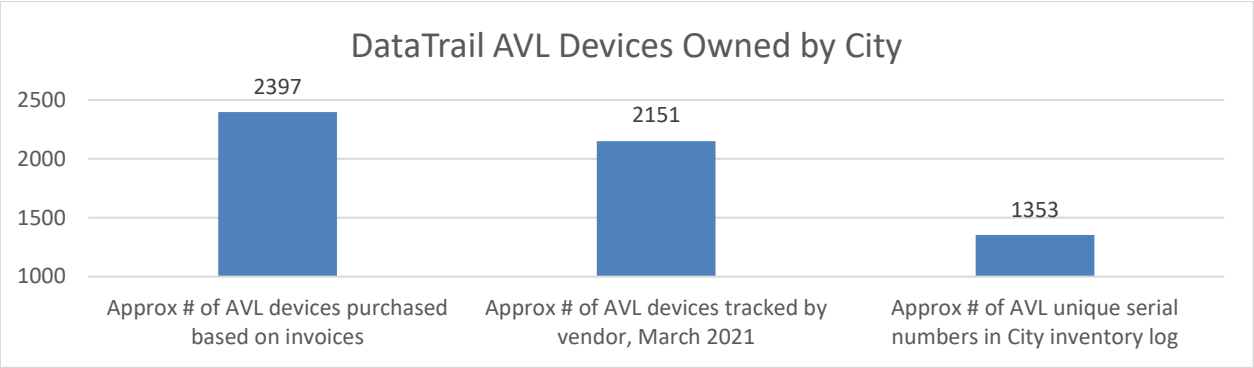
- As part of our procedures to investigate reports to the City's Fraud and Waste Hotline, we obtained AVL records that included the device inventory, the vehicles associated with each AVL device, and the operational status of each AVL device.
- Upon review we encountered issues that limited the extent of the breadth and depth of the analysis that could be performed. Examples of data issues included vehicles and/or licence plate numbers identified in Hotline reports that were:
    - Not recorded in the AVL database;
    - Recorded in hibernation mode, despite association with an operational vehicle or licence plate included in a Hotline report;
    - Included in the AVL database with incomplete and/or inconsistent information.
- Based on these limitations, we sought all remaining City AVL records for review; however, were unable to obtain consistent data sets.

	Device Inventory	User Access by Asset	User Account Status	Vehicle Setup Details	User Activity	Asset Notifications
Department A	✓	✓	✓	✓	✓	✓
Department B	×	×	×	×	×	×
Department C	✓	×	×	✓	×	×
Department D	✓	✓	✓	✓	✓	×
Department E	✓	×	×	✓	×	×
Department F	✓	✓	×	✓	✓	×
Department G	✓	✓	✓	✓	✓	✓
Department H	✓	✓	✓	✓	✓	×
Department I	✓	✓	✓	✓	×	✓
Department J	✓	✓	✓	✓	✓	×
Department K	✓	×	×	✓	×	×
Department L	✓	✓	✓	✓	✓	✓

✓ Obtained
× Not Obtained

We reviewed the City's AVL inventory records and contractor invoices. We found conflicting information about the total number of DataTrail AVL devices owned by the City.

- The magnitude of this discrepancy was a concern, but also reflective of the implementation and overall governance deficiencies of the program.



*Based on City AVL device inventory records obtained February 2021 and contractor invoices

- Given the limitations encountered with the City's AVL records that were obtained, we revised the scope of work to review the implementation and oversight of the AVL program.

OBSERVATIONS

2.1 AVL System Selection

Observations

- The AVL system that was selected did not have the required functionality to meet the needs of key departments. The current AVL system may have the ability to be adjusted to meet specific department needs, but the City has not made progress in that determination.
- The AVL contract administrator was not actively involved in the AVL program after the trial period. This role was assumed by WFMA employee, but not formalized.

Analysis

- We were informed that the decision to adopt a single, standardized AVL system was made by the City's Senior Management Team prior to 2013, and that WFMA was directed to lead the acquisition. Due to the expertise required for this initiative, a City Manager of IT Systems was appointed as the contract administrator and Chairperson of an AVL Steering Committee.
    - We noted that the City's contract administrator for the AVL contract was not actively involved in the ongoing procurement and operations of the program after the trial period was completed. This role was assumed by a WFMA employee, but not formalized.
- Initial AVL communication to departments described the intended purpose as establishing a single, standardized system that would enable departments to better manage vehicle use and resources deployed with user definable reporting and feedback produced by AVL data. The system was to be able to communicate with a vehicle to obtain information such as location, speed, idle time, material being used, dry and wet material application rate, and monitored sensor status (plow up/down, sweeper broom on/off, sander on/off, etc.)
    - We were informed that operational staff from departments were not sufficiently involved in the evaluation of potential AVL systems during the trial phase, and that the selected AVL system did not have the functionality required to improve all expected operational efficiencies. As an example, the AVL system was not able to determine and communicate the type of material hauled by a vehicle, the application rate of material applied to a road, the exact location of each material application, nor the amount of material remaining on a vehicle.
    - Public Works, which is responsible for the City's largest fleet of heavy vehicles, was unable to use the current AVL system as intended because of its limitations. In discussions, we heard that the current AVL system is considered a 'step back' from a former AVL system used by the department that had greater functionality, including the ability to track and communicate material applications.
    - The AVL system that was selected for citywide implementation may have the ability to be enhanced to meet specific department needs, but the City had not made progress in that determination.

Summary of Analysis

- Adoption of a single, standardized AVL system was intended to enable citywide service optimizations, with improved efficiencies and lower expenditures; however, the system that was selected lacked the required functionality to achieve all planned benefits of the program. As a result, key departments have not been able to use the AVL tool for their specific needs.
    - The City continues to use a variety of alternative AVL systems, as some departments have unique and very specific functionality requirements. The Province of Manitoba also utilizes an AVL system in its fleet of vehicles. As such, there is an opportunity to review and assess the performance of each to determine if a single system is capable of meeting the needs of all City departments, and to explore opportunities for shared procurement and monitoring services.
- The AVL contract administrator was not actively involved in the AVL program once the trial phase was completed; contract administration duties were assumed by WFMA staff. The lack of a formal transfer of contract administration duties could lead to confusion around specific roles and responsibilities.

RECOMMENDATION 1			
That the Chief Administrative Officer establish a team of department stakeholders, comprised of operational and technical representatives currently using an AVL system, to reassess the suitability of the citywide AVL system to achieve the intended benefits of the program.			
RISK AREA	Business Processes	**ASSESSMENT**	High
BASIS OF ASSESSMENT	The current AVL system does not have the necessary functionality to enable all departments to adjust vehicle activities in order to meet the intended goals of the program.		
MANAGEMENT RESPONSE			
Agreed. The Office of the CAO will establish an AVL working group to assess accordingly.			
IMPLEMENTATION DATE	Q4, 2021		

RECOMMENDATION 2			
That the Chief Administrative Officer should ensure that the contract administrator assigned to the citywide AVL program is in the most optimal position to monitor the performance of the contract.			
RISK AREA	Business Processes	**ASSESSMENT**	Medium
BASIS OF ASSESSMENT	The current contract administrator for the DataTrail AVL contract is not actively involved in the operations of the program.		
MANAGEMENT RESPONSE			
Agreed. The CAO will ensure that the interdepartmental AVL working group reviews and makes a recommendation for CAO consideration on the appropriate designation of the contract administrator, including how best to position that person to monitor the performance of the contract.			
IMPLEMENTATION DATE	Q1, 2022		

2.2 AVL Program Governance

Observations

- The AVL program did not have a corporate program 'owner' with authority to provide oversight and enable department accountability for program activities and outcomes.
- The AVL program was not supported with a program charter, or citywide policies to establish minimum standards, roles and responsibilities, and guidance related to day-to-day activities of the program.
- Some City AVL administrators identified that a Letter of Understanding between the City and a labour union contributed to a lack of clarity on acceptable procedures for accessing AVL data for the purpose of monitoring vehicle and equipment performance. Inconsistent access to data in the AVL system was also compounded by user frustration with initial technical issues with the vendor AVL website. These technical issues have since been addressed.

Analysis

Program Owner & Oversight

- Each department was expected to determine how to best monitor and use the AVL data to make adjustments to vehicle and equipment use; however, this decentralized approach lacked a corporate program 'owner' with authority to support departments with ongoing oversight, and reporting relationships. The absence of a corporate program 'owner' contributed to an accountability gap in the AVL program.
    - WFMA was considered a leader of the AVL program, because the Agency was directed to implement the program, and administer the AVL contract; however, WFMA was not delegated the authority to direct how and when to use AVL devices, frequency of access and monitoring of AVL data, or guide department fleet activities to achieve the intended benefits of a citywide AVL program.
    - The lack of a designated program authority to provide direction and oversight was a contributing factor for insufficient reporting and accountability for AVL use and outcomes; departments did not directly report on AVL outcomes, as WFMA obtained departmental AVL data from the database maintained by the vendor.
    - The ongoing maintenance of AVL records has been assumed by WFMA staff, and has been performed as time permits. We found that a lack of a designated AVL employee resource has been a contributing factor for insufficient maintenance of AVL records.

AVL Policy & Citywide Standards

- Program implementation did not include a program charter, or citywide AVL policy(s) to define program structure and citywide minimum standards for use. This was a contributing factor for inconsistencies for how and when AVL devices were used, and when the AVL information system was accessed for monitoring.

- During the period of AVL device installations, the City and a labour union negotiated a Letter of Understanding for AVL use and access to AVL data by City employees.
    - Anecdotally, we heard from key City staff involved in the AVL program that the LOU contributed to a lack of clarity on how and when the AVL data for vehicle and equipment performance was permitted to be monitored. This contributed to hesitancy among the City's AVL administrators to access the AVL system for that purpose.
    - During the period of this investigation, Administrative Standards HR019, *Safe & Responsible Driver*, and HR020 *Workforce Management Technology*, were finalized and communicated to City staff. Each of these Standards include roles and responsibilities related to the AVL program, but neither outlined procedures for ongoing access to the AVL system for monitoring vehicle and equipment performance.
    - We were informed that the LOU remained in effect, despite the introduction of new Administrative Standards. The combination of the LOU and Administrative Standards do not sufficiently clarify acceptable procedures for accessing AVL data for the purpose of monitoring vehicle and equipment performance.
- We heard anecdotal information that the City's AVL administrators had initially experienced challenges with the AVL vendor's software/website, including a limited ability to view data from multiple AVL devices simultaneously, and unprompted website timeouts. These challenges created frustration and was a contributing factor for some of the City's AVL administrators to access the AVL system infrequently.
    - We were informed that the vendor has worked with the City to address these technical issues, and that the website/software has since been improved to allow for a better user experience.
- We found that City AVL administrators accessed the AVL system database inconsistently. Based on City AVL records, we noted that:
    - Of the 1,353 AVL devices included on the City's inventory record, 123 did not have a City employee email address assigned to receive notifications. It was not clear if the AVL system was accessed to monitor the data collected by these devices.
    - Of the 1,139 unique vehicles identified in the City's AVL user list, 181 of the associated City employee monitoring accounts had an error message.[1]
        - Error messages, such as 'force password change', indicate that the monitoring employee had not accessed the AVL system to review data for a specific vehicle for an extended period.

[1] This figure was based on data obtained in February 2021. Records obtained were incomplete, and may understate the total number of account error messages. Some vehicles may have been in hibernation mode, and therefore, not actively monitored by an AVL administrator. Some vehicles had multiple City employee AVL administrators; if at least one account was active, other associated accounts with an error message were not counted in this total.

- We found the City's AVL database of employees designated as AVL administrators contained the names of ex-employees, and employees that have moved to different role within the City.
    - Based on the City's AVL user list, an approximate total of 259 City employees were designated an AVL administrator and assigned to monitor at least one vehicle or piece of equipment. Of these:
        - 22 were ex-employees;
        - 7 had moved into a different staff position within the City.
- AVL devices can be set to send an automatic notification of vehicle activities exceeding a threshold; however, there were no citywide standards for such thresholds. City AVL records of notification settings were incomplete, but available records indicated that the majority of AVL devices were not set to provide effective automatic notification of vehicle activities.
    - Based on City AVL records obtained, we found:
        - 97% of AVL devices did not have an idle time threshold notification set.
        - 22% of AVL devices did not have a speed notification set, and 76% operated with the default setting of 105kph.
        - 40% of AVL devices did not have an engine RPM notification set, and 60% operated with the default setting.
        - 29% of AVL devices did not have a 'hard start/stop' notification set, and 71% operated with the default setting.
- Administrative Standard HR019, *Safe & Responsible Driver*, identifies the responsibility of employee supervisors to review approved exception reports generated by AVL; however, HR019 does not identify the source of approval, or minimum standards for vehicle activity threshold settings that prompt notification and are the basis for an exception report.

AVL Roles & Responsibilities

- We observed that a lack of an AVL program charter, and/or AVL policy contributed to undefined roles and responsibilities, standard procedures applicable to all departments, and reporting relationships to enable accountabilities.
    - The introduction of the AVL program was communicated by WFMA to all participating departments. The communication included notice that staff designated to have access to the AVL data were to be notified of their responsibilities, and that departments were responsible for communicating this to their AVL administrators internally.
    - Responses to a questionnaire sent to department AVL administrators indicated that internal communication and documentation of structure and responsibilities was inconsistent. We also noted that numerous respondents to the questionnaire indicated that they were not in an AVL administrator role when implementation began. Given the lack of documented standards/guidance it was not clear if expectations for use and monitoring have been consistent over time and if roles and responsibilities have been sufficiently communicated to all department staff administering the AVL program.
    - We found that the autonomy delegated to departments to define AVL program structure, roles, and responsibilities had resulted in significant variation in how and when the AVL data was used, and the AVL program benefits attained.

- Administrative Standards HR019, *Safe & Responsible Driver*, and HR020 *Workforce Management Technology* included high-level roles and responsibilities related to vehicle operations and the use of AVL technology.
    - Standard HR019 identifies a responsibility of the WFMA General Manager to:
        - Consult and assist, along with the AVL vendor and City departments, on AVL application use, enhancements, and reporting;
        - Monitor vehicle idling trends, address unnecessary idling and provide information on why it is important and must be reduced;
        - Utilize AVL data to optimize fleet management.
    - Standard HR019 does not identify a role or responsibility of a program owner with authority to enable departmental accountability for AVL use and outcomes.
    - HR020 identifies responsibilities for employees accessing City data produced by technology, but is limited to three scenarios, none of which are directly related to day-to-day activities in pursuit of the intended AVL program benefits.

Summary of Analysis

- The AVL program was decentralized, with each department determining how and when to use AVL devices and AVL data. But a lack of a corporate 'owner' to support departments with clarity of goals, enforcement of expectations, and accountability for outcomes has contributed to insufficient program oversight. Accountability for program use and outcomes needs to be strengthened to ensure minimum standards are being met and intended outcomes are achieved.
- An absence of an AVL policy to define citywide minimum standards contributed to a lack of clarity on the purpose of the AVL program, inconsistent use of AVL devices, and inconsistent access to the AVL data produced. An LOU between the City and a labour union also contributed to a lack of clarity on acceptable practices for ongoing access to AVL data for monitoring vehicle and equipment performance, resulting in some AVL administrators accessing the performance data infrequently, or not at all. Recently introduced administrative standards have not sufficiently clarified acceptable practices and at the time of this report, the LOU remained in effect. The program would be better supported with a stand-alone AVL policy that outlines minimum standards for when and how AVL devices are expected to be used, and the acceptable frequency of access to AVL data for monitoring.
- Hesitancy to access AVL data to monitor vehicle and equipment performance was compounded by initial challenges with the functionality of the vendor's web portal; however, the vendor has since worked with the City to address these issues and improve the user experience.

RECOMMENDATION 3			
That the Chief Administrative Officer designate and delegate authority to a corporate program owner to enable departmental accountability for AVL use and outcomes.			
RISK AREA	Human Resources	**ASSESSMENT**	High
BASIS OF ASSESSMENT	The City of Winnipeg did not have a corporate program owner to provide oversight of the AVL program used by multiple departments.		
MANAGEMENT RESPONSE			
Agreed. The CAO will ensure that the interdepartmental AVL working group reviews and makes a recommendation for CAO consideration on the designation of a corporate program owner.			
IMPLEMENTATION DATE	Q1, 2022		

RECOMMENDATION 4			
That the Chief Administrative Officer establish a 'stand-alone' AVL policy to define citywide AVL minimum standards that are applicable to all departments participating in the program. Citywide minimum standards should include: ○ *Minimum requirements for the AVL device threshold settings that prompt notification to a monitoring employee, and are the basis for generation of an exception report;* ○ *Acceptable practices for access to AVL data that is not prompted by an exception report, or employee performance investigation;* ○ *A standardized process for adding or removing employee access to the AVL system database to enhance data security;*			
RISK AREA	Business Processes	**ASSESSMENT**	High
BASIS OF ASSESSMENT	The City did not have minimum standards or guidance for a citywide program used by multiple departments.		
MANAGEMENT RESPONSE			
Agreed. The CAO will ensure that the interdepartmental AVL working group prepares a draft "stand-alone" AVL policy for CAO consideration.			
IMPLEMENTATION DATE	Q2, 2022		

RECOMMENDATION 5			
That the Chief Administrative Officer review the AVL Letter of Understanding and communicate guidance on access and use of AVL information to support the achievement of the City's AVL program objectives.			
RISK AREA	Human Resources	**ASSESSMENT**	High
BASIS OF ASSESSMENT	The AVL LOU has contributed to a lack of clarity on acceptable practices for accessing AVL data for the purpose of monitoring the performance of the City's vehicles and equipment.		
MANAGEMENT RESPONSE			
Agreed. The CAO will review the AVL Letter of Understanding and communicate the recommended guidance.			
IMPLEMENTATION DATE	Q2, 2022		

2.3 Achievement of AVL Program Goals

Observations

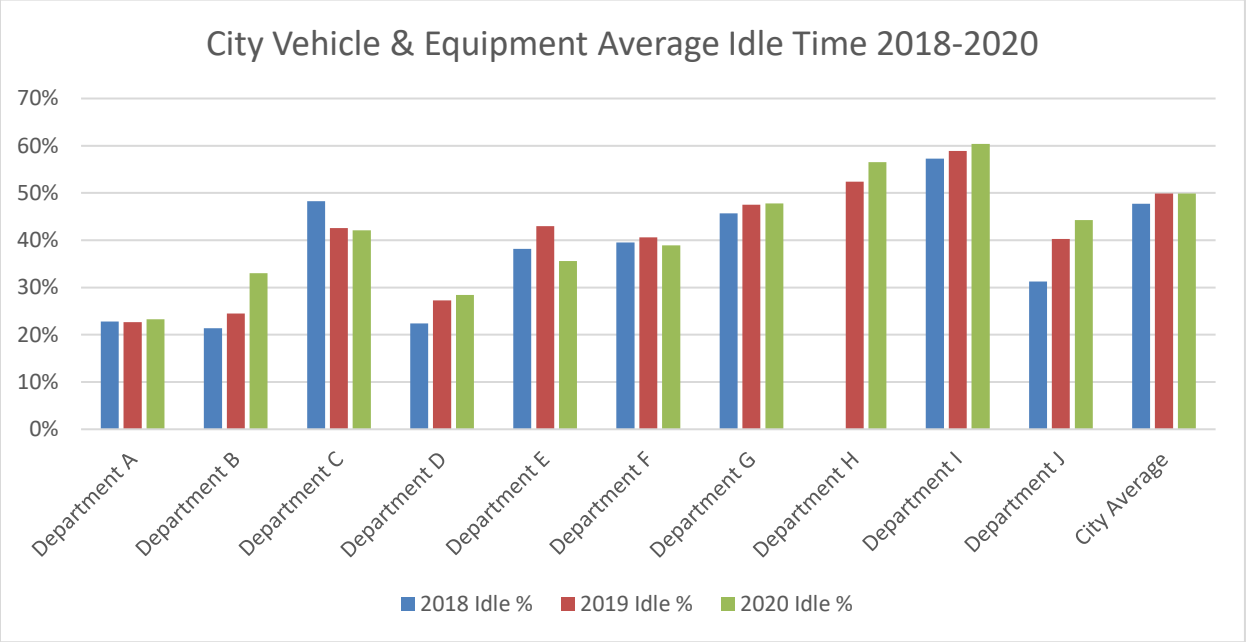
- Measurable program goals were not sufficiently clear, or associated with a timeline of milestones to enable assessment of progress.
- The citywide AVL system did not have the functionality to collect all vehicle performance metrics necessary to support achievement of the intended benefits of the program.
- City vehicle idle times have generally remained stagnant since 2018, with minimal progress made towards goals identified in the City's AVL program literature.

Analysis

- The majority of intended benefits of the AVL program did not include clear, measurable targets, or a timeline to assess progress. The AVL project was introduced as a tool that would enable the City to generate the information necessary to achieve planned benefits; however, once the AVL system was implemented, measurable goals and associated timelines were not established to assess program performance.
    - We noted that the vehicle idle time reduction benefit included measurable goals, and a timeline to achieve, but each of these metrics lacked sufficient clarity.
- We did not investigate the extent to which all of the intended AVL program benefits and goals had been achieved. As this project shifted from follow-up of specific allegations to assessment of program implementation and governance, we reviewed the program benefits and goals achieved with the AVL performance data that was available.
- The adoption of a standardized AVL system was intended to enable WFMA to implement the idle reduction strategy identified in the City's 2011 Green Fleet Plan by enforcing, through a joint effort with departments, an idle reduction policy that outlined limits on the amount of time a City vehicle or equipment can idle.
    - The 2011 Green Fleet Plan included guidance for vehicle idle times, but the City did not have a planned corporate idle reduction policy to communicate defined standards, or provide the means to enable the intended collaborative enforcement between WFMA and departments.

- During the period of this investigation, the City finalized Administrative Standard, HR019 *Safe & Responsible Driver.* The Standard outlined guidance for City vehicle idle times, and identified that department directors and general managers are responsible for educating staff, and ensuring employee accountability for compliance.

- Idle time reduction goals were not established with a baseline starting point, as the City did not have a means to collect citywide idle time data before 2018. Given this limitation, it was not clear how targets were established, or if goals were achievable.
- We found conflicting information outlining the intended idle time reduction goals and overall greenhouse gas emission reduction goals within the AVL program literature, including:
  - A goal to reduce fleet idling by 50% by 2019 in the 2013 AVL Project Report;
  - A goal to reduce fleet idling by 50% by 2023 in the 2017 AVL Summary & Benefits Report (page 4);
  - A goal to reduce fleet idling by 20% by 2023 in the 2017 AVL Summary and Benefits Report (page 5).
- The installation and activation of devices, was delayed by a period of negotiation between City officials and labour union representatives regarding the use of AVL devices.
  - The extended period for installation and activation significantly shortened the available time to meet the intended goals of the program; however, neither the goals of the program, nor the timeline to achieve those goals were adjusted.
- We noted that the COVID19 virus significantly impacted how and when employment activities occurred, including vehicle and equipment use; however, data produced by AVL devices and provided annually by WFMA to departments indicate that:
  - City vehicle idle times have remained generally stagnant since 2018, with minimal or no progress made towards achieving the goals outlined in the City's AVL literature.
  - 7 of the 10 departments we obtained data for have experienced an increase in the average amount of idle time since 2018.
  - The overall City average has increased from 2018 to 2019, but has remained consistent since then.



* Based on City AVL records obtained in March 2021
* Idle time data for departments K & L were not available

- In the approval of the Green Fleet Plan, City Council also approved a plan for an annual report to be submitted to the Executive Policy Committee. The annual report was expected to include department trends that would inform adjustments to strategies if necessary.
- Administrative Standard, HR019 *Safe & Responsible Driver*, defines the responsibility of WFMA to report to Standing Policy Committee, Innovation and Economic Development with year-over-year statistics regarding vehicle idling trends.
    - At the time of this investigation, AVL statistics, including vehicle idle time trends had not yet been reported to either Committee, or to a corporate program owner.
- The citywide AVL system was intended to enable Public Works to optimize service and reduce costs by providing specific information about application of materials onto roads, as well as the timing and location of auxiliary equipment use.
    - These intended benefits were not accompanied by clear, measurable goals, or a timeline to achieve; however, given the lack of the AVL system's capability to provide the necessary information, we inferred that no progress had been made towards realizing this benefit.

Summary of Analysis

- The AVL program was not implemented with specific, measurable goals or a timeline to benchmark and assess progress. As a result, the AVL program was not well-positioned to succeed, and this was a contributing factor for underperformance. The City's overall return on the investment made in a standardized, citywide AVL system had not yet been determined.
- A standardized citywide AVL system was expected to provide information that would enable departments to respond with adjustments to reduce emissions; however, departments were not supported with a City policy for acceptable engine idle times, or a benchmark for enforcement and accountabilities. This was a contributing factor for minimal progress made towards achieving the vehicle idle reduction goals.

- Administrative Standard, HR019 *Safe & Responsible Driver* was finalized during the period of this investigation, and includes vehicle idle time expectations.

- The citywide AVL system did not produce the intended benefit of increasing service optimization and cost reductions of fleet activities, such as road sanding/salting, and insecticide applications; the system that was selected for citywide use did not have the functionality to provide the necessary information to make informed adjustments to practices.

RECOMMENDATION 6			
That the Chief Administrative Officer, or delegate, establish and communicate specific, measurable, attainable, relevant, and time-bound (SMART) goals for all intended outcomes of the AVL program.			
RISK AREA	Performance Measurement	**ASSESSMENT**	High
BASIS OF ASSESSMENT	AVL program goals were not sufficiently clear or measurable, and minimal progress was made towards obtaining intended benefits.		
MANAGEMENT RESPONSE			
Agreed. The CAO will ensure that SMART goals are established and communicated as recommended.			
IMPLEMENTATION DATE	Q4, 2022		

APPENDIX 1 - Methodology

MANDATE OF THE CITY AUDITOR

The City Auditor is a statutory officer appointed by City Council under *The City of Winnipeg Charter*. The City Auditor is independent of the Public Service and reports directly to Executive Policy Committee, which serves as the City's Audit Committee.

The City Auditor conducts examinations of the operations of the City and its affiliated bodies to assist Council in its governance role of ensuring the Public Service's accountability for the quality of stewardship over public funds and for the achievement of value for money in City operations.

Once the report has been communicated to Council, it becomes a public document.

SCOPE

The scope of work we performed included a review and selective testing related to the allegations from the Fraud and Waste Hotline reports.

We encountered challenges with the City's AVL records that limited the breadth and depth of the analysis that could be performed. As a result, we revised the scope to include examination of key business processes, AVL program governance, and the achievement of the program goals. Our examination of achievement of program goals was limited to the City's AVL performance data that was available.

APPROACH AND CRITERIA

The work performed in relation to this project does not constitute an audit conducted in accordance with Generally Accepted Government Auditing Standards (GAGAS). The work performed does conform to Audit Department standards for independence, objectivity and quality. We believe we have performed sufficient work in satisfaction that the evidence obtained provides a reasonable basis for our findings and conclusions.

We researched concepts recognized by the Project Management Institute, the Project Management Body of Knowledge (PMBOK), and leading practices from the Government Finance Officers Association for project monitoring and reporting to develop criteria to assess the AVL program.

We engaged an external contractor to perform additional analysis of the available City AVL records. We used this analysis for insight and assessment of the effectiveness and efficiency of the AVL program.