Audit Report 2020-04
Transportation Operations Inventory Audit

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Executive Summary

Transportation Operations management contacted the Office of the City Auditor (OCA) in May 2020 with concerns about suspected misappropriation of copper wire inventory.

As a result, the City Auditor chose to carry out an audit of inventory processes to identify gaps that expose Transportation Operations to the risk of fraud. In addition, the City Auditor chose to follow up on nine recommendations brought forward by the OCA during a similar inventory audit conducted in 2013. The City Auditor has brought forward 22 new recommendations to strengthen controls and increase process efficiencies related to inventory. Management in Transportation Operations and Business Initiatives agreed with 19 of the recommendations and partially agreed with the remaining three recommendations. Action plan completion dates range from Q4 2020 to Q4 2022.

Introduction and Background

In May 2020, the OCA was notified by management in Transportation Operations and Business Initiatives of suspected misappropriation of copper wire inventory. After a site visit and preliminary discussions with management about their concerns, the OCA decided to carry out two concurrent assignments:

1. An investigation into the discrepancies surrounding copper wire; and

2. A high-level audit of Transportation Operations and Business Initiatives inventory processes as well as following up on all recommendations brought forward during a more detailed, controls-based audit related to inventory conducted in 2013.

This report contains the results of the inventory audit. The investigation into the copper wire discrepancies are presented under separate cover in Appendix “D” to Report AUD20008.

The City of Hamilton, in accordance with its obligation to ensure that it is providing efficient and fair delivery of City services, has appointed an Auditor General, known as the City Auditor, who is the leader of the OCA. The City Auditor receives reports of actual or suspected fraud from management as outlined in the City’s *Fraud Policy and Protocol* which affords discretion to the City Auditor to investigate matters which may from time to time involve related audits of processes that are not on the Audit Workplan. This audit was carried out under that authority and is intended to provide Council with the OCA’s findings and conclusions regarding potential weaknesses in City processes.

Key Terms

Business Initiatives: Section within the Transportation Operations & Maintenance Division responsible in part for business services, which includes ordering, receiving and distributing inventory, managing the stockroom, and data entry. Traffic Operations Clerks are a part of this section.

Hansen: System currently used by Business Initiatives to record inventory movement, enter work orders and track project costs (labour and materials). Hansen will be replaced with a new Enterprise Asset Management system in early 2021. Infor is the company that provides both the Hansen and Enterprise Asset Management systems.

Obsolete Inventory: Materials that are out of date and no longer used.

Primary Inventory: Refers to materials stored in the stockroom within the Traffic Operations Centre. Several safeguards are in place to protect these items, such as restricted access, tracking the movement of inventory and performing both cycle and year-end inventory counts.

Secondary Inventory: Refers to materials stored in work vehicles and in several areas throughout the Traffic Operations Centre which are accessible by all employees. There are no safeguards in place to protect these items or monitor use.

Segregation of Duties: Concept of having more than one person complete a task or set of transactions in order to prevent fraud and error.

Transportation Operations: Section within the Transportation Operations & Maintenance Division responsible for the design, installation, operation and maintenance of traffic signs, roadway safety devices, traffic signals, pavement markings, street lighting and roadway safety. Staff in these areas utilize inventory to carry out their daily work assignments.

Audit Objective

The overall objective of this audit was to determine the adequacy of processes and controls in place which are designed to safeguard inventory and detect inappropriate inventory usage, loss or misappropriation.

Audit Scope

The scope of work included processes related to the ordering, receiving, handling, distribution and return of inventory used by Transportation Operations and Business Initiatives at the Traffic Operations Centre. The audit also included looking at access to and security of inventory, inventory counts, strategic planning and inventory management.

The scope of work did not include tools, batteries, gloves, personal protective equipment, clothing and other items meant to support staff in performing their duties.

Management began to store inventory at another City facility after audit fieldwork concluded. As a result, the scope of work did not include inventory locations other than the Traffic Operations Centre.

What We Did

1) Gained an understanding of administrative and operational processes associated with inventory at the Traffic Operations Centre.

2) Assessed processes and controls in place for safeguarding inventory. This work included documenting processes, performing process reviews and identifying controls in place.

3) Performed follow up audit work on all recommendations brought forward in Audit Report 2013-17 – Public Works – Traffic Inventory (AUD14017).

How We Did It

- Reviewed applicable policies, procedures and reports.
- Interviewed various personnel and other City employees.
- Documented pertinent processes in a narrative.
- Examined electronic and paper documents, reports and transactions, as needed to understand inventory-related processes.
- Observed relevant processes and handling of inventory.

Findings

Roles, Responsibilities, Accountability & Ownership

One common theme identified throughout most interviews was the lack of clarity around the roles people play with respect to inventory management and processes, and who is ultimately responsible and accountable for certain functions. There is a systemic lack of collective ownership over inventory, which has created silos within Transportation Operations and Business Initiatives, a breakdown in communication and a lack of initiative to fix widely-known problems. Even though employees are passionate about their job and highly motivated to carry out their daily work activities, this is often at the expense of building awareness and understanding of each other’s individual contributions to inventory management. In many circumstances, employees’ desire to make things better is low due to unsuccessful or unrecognized past attempts to make positive change.

The following are interview comments that illustrate this theme:

- Operations gets work done. All things inventory belongs to the Clerks.
- I know we have stuff here that we’re never going to use – I don’t know how to get rid of it and I don’t know who to go to.
- When I tell someone about obsolete goods, process improvements or material/vendor issues, nothing happens.
- Supervisors expect stock to be there even though they don’t communicate what materials are needed for upcoming projects and they don’t look up inventory quantities in Hansen or learn how to use the system.
- Operations management is responsible for making sure stock is available for their people to do their work. (This may involve bypassing normal inventory processes such as ordering stock themselves.)
- I wouldn’t think about telling the stockroom I was ordering stuff or how much room I’d need.
- Subject matter experts who create inventory specifications for new contracts don’t consult with maintenance staff to brainstorm pain points – some new parts just won’t work with existing infrastructure or the ability to order spare parts isn’t included in the contract.

- We’re not consulted far enough in advance by other City groups when we’re involved in their projects, which makes it hard to make sure enough inventory is on hand when we need it.

- Opportunities exist for more team work. We are reactive. We should start planning our work and communicating our inventory needs to the Clerks in advance so materials can be ordered and be here when we need it.

- Everyone is responsible and has a role to play. Inventory is one piece of the puzzle to finish projects – our approach toward inventory and each other can help or hinder achieving that goal.

Transportation Operations and Business Initiatives, like many other areas in the City, have experienced a fair amount of retirement, turnover and transition in the past couple of years. This, compounded by the fact that many inventory-related processes are not documented, may have contributed to the amount of uncertainty and frustration expressed by staff.

Organizational culture has a profound impact on the control environment – it sets the stage for the integrity, ethical beliefs and competencies of its people. People carry out the processes which embody the internal controls required to safeguard inventory. Transportation Operations and Business Initiatives have an opportunity to strengthen the inventory control environment by building more clarity, understanding and collaboration into daily activities.

Inventory Management – Primary Versus Secondary Inventory

Transportation Operations and Business Initiatives classify their stock as either primary or secondary inventory.

Primary inventory refers to materials housed in the stockroom located inside the Traffic Operations Centre. Several safeguards are in place to protect primary inventory, such as restricted access, tracking the movement of inventory and performing both cycle and year-end inventory counts. Approximately 40% or $1.7 million is in primary inventory.

Secondary inventory refers to materials housed in work vehicles and several areas throughout the Traffic Operations Centre, such as the parking lot, outside compound, outside loading dock, outside rear yard, inside cage, garage, signal shop, machine shop and print shop. These areas are accessible by all employees and not monitored by the Traffic Operations Clerks or operational management. Materials taken from secondary inventory are not recorded – these items are captured on employees’ Daily Activity Sheets only when the materials are used to complete a work assignment. There are no internal controls over secondary inventory to prevent misuse or misappropriation of goods. Approximately 60% or $2.5 million is in secondary inventory.

There are no clear guidelines or criteria as to what is classified as primary or secondary inventory. It is assumed that inventory susceptible to misuse or misappropriation would be stored in the stockroom due to having restricted access and a higher level of control compared to secondary inventory. During a facility walkthrough, the OCA identified the following items and questioned whether their storage location was reasonable:

- A significant amount of copper wire is in the garage (a secondary location). The OCA investigated management’s concerns that copper wire was being misappropriated. Due to its scrap value, this item would be considered higher risk, and should either be stored in the stockroom or additional controls should be implemented to monitor use while in secondary inventory.

- Manufactured signs awaiting pick up are stored in primary inventory. These items are low risk and could be housed in a secondary location.

- Completed controller cabinets are stored in the garage (a secondary location). Situations have occurred where staff have taken parts from completed cabinets for their own projects, making the cabinets inoperable. Additional security and controls afforded by the stockroom would have prevented this from occurring.

- A round pole is stored in the stockroom while a bolt pole is stored outside in the compound. Each pole is identical, apart that a round pole has threads to attach it to another structure while a bolt pole has holes to bolt it to the ground. Staff indicated that a round pole is more fragile due to the threads; hence it is stored inside. This item does not require the added control afforded by the stockroom.

Approximately $2.5 million of inventory is housed in secondary locations – this is a significant amount of inventory with very little oversight and no internal controls. Even though secondary inventory reduces the time it takes for staff to get materials, there must be a balance between ease of access, risk of misuse/misappropriation and level of control.

Inventory Management – Items Not Recorded in Inventory

Traffic cameras, radios and other items purchased with capital budget dollars are stored in the stockroom for security purposes; however, these items are not recorded or tracked by the Traffic Operations Clerks in Hansen. Project Managers insisted these items not be recorded in Hansen to allow the full cost to be charged to the capital budget in the year of purchase, not as items are used.

Although a reason exists as to why this practice exists, not tracking or recording capital purchases increases the risk that items may be misplaced, misused or misappropriated without anyone knowing. In addition, it is unclear who would be responsible if these items were lost, damaged or stolen. In some cases, these are high value items – management valued the traffic cameras and associated materials to be approximately $1.5 million.

In addition, operational staff in other areas may use Excel spreadsheets or other means to track what is being stored in the stockroom (e.g. radios). This method of inventory management is not efficient considering that Business Initiatives already has a system and staff that monitor inventory.

Inventory Management – Classification and Organization of Inventory

Staff identified several challenges related to how inventory items are classified and organized within the stockroom.

Part numbers for some inventory items are no longer suitable, making it difficult to know whether an item is available and in what quantities. For example:

- Part #7601 was created as a catch-all for infrequently used street signs. Over time, the number of signs in this category has grown exponentially. Separate part numbers were not assigned to existing or new signs that were used more frequently. As a result, it is difficult for Traffic Operations Clerks to know whether a specific sign is in stock.

- The controller for a pedestrian crossover (PXO) is made up of approximately 12 components. Each component has the same part number. If staff require one component to repair a PXO, it is difficult to identify that component and record its use as PXOs are set up in Hansen as a kit rather than by individual component.

The stockroom is not organized in a manner to optimize space, find items quickly and facilitate an inventory count. For example:

- The same item is stored in multiple locations throughout the stockroom.

- Aisles, work benches and other areas are cluttered with items set aside for particular projects, signs waiting to be picked up, inventory needing a storage space, etc. One loading bay is not used because it is blocked with boxes.

- The general layout of the stockroom is segregated between signs and signals. Items are not stored based on frequency of use. Staff explained how time is spent moving skids and boxes around in order to access items.

- An area of the stockroom is used for filing paperwork related to both inventory and operations. Some of these documents date back upwards of 20 years.

It is extremely important for Business Initiatives to optimize the use of available real estate in order to have sufficient stock on hand to meet operational demand, store materials for other groups when the need arises, set aside materials ordered for construction projects, and free up space to store items currently in secondary inventory that require more controlled access.

Security

Physical security measures are in place at the Traffic Operations Centre. However, opportunities exist to improve a variety of security tactics.

Please refer to Private and Confidential Appendix “E” to Report AUD20008 for detailed security audit observations.

Obsolete & Excess Inventory

As standards and technologies change, materials become out dated and may no longer be used by Transportation Operations. Staff are aware of obsolete materials in the stockroom, such as incandescent street light bulbs, that the City will not use again. No one is aware of who to inform or what to do to dispose of obsolete inventory.

In addition, it is unclear who is responsible for identifying and informing the Traffic Operations Clerks when specifications or standards have changed so that unsuitable materials are no longer disbursed from the stockroom.

There are also instances where there is too much or excess inventory. In some cases, staff dispose or scrap these materials to make more room in the stockroom and other areas where inventory is stored.
Without a clear procedure outlining who does what with excess or obsolete goods, there is a risk that materials are thrown out or scrapped incorrectly and the City will lose out on any remaining value associated with these items.

Distributing Inventory to Contractors and Other City Employees

Various contractors, non-Traffic City employees or others may arrive at the Traffic Operations Centre requesting inventory, specialty signs or other items. Traffic Operations Clerks may be provided an email or other documentation in advance

indicating who is arriving to pick up materials. However, this process is inconsistent or not always followed.

Traffic Operations Clerks ask the person to produce a document or email showing what materials are being picked up and authorization to take them. In many cases, individuals do not have this information or even know what materials they are there to retrieve. The Traffic Operations Clerks investigate and call other City staff to try and identify the materials and get approval to release them.

Without a standard process to distribute inventory to outside contractors and other City employees, there is a risk that materials are incorrectly disbursed.

Inventory Returned from the Street

When performing maintenance on traffic signs or signals, staff remove old parts and replace them with new or updated ones. The old parts are returned from the street to the Traffic Operations Centre. Staff bringing back the parts decide whether items are reused, scrapped or brought back into inventory.

Staff indicated that direction was given to scrap all materials returned from the street. The normal practice is to value returning scrap at a nominal value of $0.01 no matter what its true value as scrap material. Just because materials are assigned an arbitrary value to increase available quantities in Hansen does not mean that these materials are worthless. It would cost the City far more to buy new as compared to reusing an item returned from the street. This practice degrades the ability of the City to realize full value in managing its inventory.

Management identified items in the scrap bins that may be reused or reworked into useable items. Even though staff were told by management during the audit to not throw reusable items into the scrap bins, there is no oversight and no training was provided to staff to ensure this change would be successful.

There is also concern that Transportation Operations or Business Initiatives may not be identifying warranty issues or possible product flaws if there is no record keeping or oversight over disposed materials.

In addition, inconsistencies exist with how materials brought back into inventory are recorded in Hansen. The Manager indicated that materials returned from the street are valued at $0.01. However, the OCA viewed a Traffic Operations Clerk using a different method, average costing, to value inventory when a transaction was entered. Average costing impacts the value of materials charged out to projects as well as the value of items remaining in inventory.

Utilizing Technology to Eliminate Paper

Transportation Operations and Business Initiatives generates a significant amount of paperwork each day (e.g. vendor order forms, invoices, work orders, daily activity sheets, stock pick tickets, etc.). Capability exists within the current Hansen system to make many processes paperless. Other areas within the City use Hansen to track inventory orders, receipts, packing slips, back orders, payments, contracts and purchase order details electronically. In addition, Hansen has been used by others to issue work orders and for staff to receive work orders and record daily activities (including time and materials) electronically in the field using tablets. There is also the ability to upload photos and barcodes to scan individual inventory items received, disbursed and used into Hansen.

Going paperless will significantly reduce filing storage and create space in the stockroom, reduce the amount of manual data entry and streamline processes for operational staff. There is also an opportunity to build controls into the electronic system to reduce errors, such as warning staff if part numbers or other data is not entered correctly.

Year End and Cycle Counts

Both primary and secondary inventories are counted at the end of the calendar year. In addition, counts of selected items in the stockroom occur throughout the calendar year (otherwise known as cycle counts). Inventory counts are important safeguards to ensure that inventory management is accurate and that goods are not being lost or misappropriated. Opportunities for improvement exist for both cycle and year end counts.

Management indicated that cycle counts occur on a weekly basis. Traffic Operations Clerks explained these counts are carried out when time allows or when discrepancies arise. A review of available cycle count sheets from July 2019 – May 2020 show that these counts occurred on a sporadic basis. In addition, staff select which items are counted. No strategy or criteria exist to determine which inventory items should be counted.

During the cycle count, if staff uncover a discrepancy between what is counted and the quantity shown in Hansen, they investigate to ensure all transactions are accurately recorded in Hansen. If the difference cannot be found, staff make an adjusting entry in Hansen to correct the quantity and a peer reviews the entry to make sure it’s accurate. Management does not oversee or approve inventory adjustments entered into Hansen. This creates an opportunity for staff to misappropriate inventory and hide the irregularity through an inventory adjustment.

Management indicated that an inventory count was performed at the end of 2019. The OCA was unable to gain a full understanding of how the count was conducted or the results, because no procedures exist and the employee responsible for overseeing the count retired before the audit began.

Management performed an inventory count in June 2020 in light of their concerns which lead to this audit. Both the OCA and management are uneasy about the accuracy and completeness of the count results due to the following reasons:

- The count was performed by staff who are familiar with the parts relevant to their duties; however, these individuals do not work in the stockroom and have no experience counting inventory. The management team member overseeing the count also had no prior count experience. Training was not provided beforehand.

- No procedures existed describing the count strategy or the how certain items should be counted.

- Inventory on work vehicles and throughout the Traffic Operations Centre was not organized beforehand which made the count difficult.

- After the count, management discovered inventory that should have been counted. Also, items were counted that should not have been counted.

- There is no indication that obsolete items were excluded from the count.

- Counters identified items that were not on the inventory list; however, these items were not recorded on a separate sheet for management’s review.

Follow Up Audit Results

The OCA audited the management, administrative and operational processes associated with traffic operations inventory in 2013. Nine recommendations were made to strengthen controls, ensure inventories are adequately safeguarded and accounted for, and raise opportunities for administrative efficiencies and improved management oversight. *Audit Report 2013-17 – Public Works – Traffic Inventory (AUD14017)* was originally issued in June 2014 and management action plans with implementation timelines were included in the Report. The OCA conducted a follow up exercise in the Fall 2015 to determine if appropriate and timely actions had been taken. *Follow Up to Audit 2013-17 Public Works – Traffic Inventory (AUD16007)* was issued in March 2016 with the results of the follow up exercise. At that time, of the nine recommendations made in the original Report, two recommendations were completed, three were in progress and four remained not completed.

In light of the inventory concerns raised, the OCA decided to follow up on all nine recommendations again as part of this current audit. Please refer to Appendix “C” to report AUD20008 for a detailed account of the observations, recommendations and management action plans from the original Report, follow up comments from 2015, and the comments from this year’s follow up audit.

As of June 2020, of the nine recommendations made in the original Report, two recommendation is in progress, two recommendations are initiated and five remain not completed. As compared to the 2015 follow up, the status of four recommendations have remained the same, one has improved, while the remaining four regressed.

Overall, management has made progress as compared to the original audit in 2013 with respect to developing a better system to secure and track inventory within the stockroom. However, additional effort is required to address most of the observations.

Recommendations

Please refer to Appendix “B” to Report AUD20008 for a list of Recommendations and the related Management Action Plans that will strengthen controls and increase process efficiencies for inventory. Please refer to Private and Confidential Appendix “E” to Report AUD20008 for a list of recommendations and the related Management Responses that address the audit observations related to security.

Conclusion

The OCA has brought forward several observations and recommendations in order to build upon Transportation Operations’ and Business Initiatives’ continued efforts to improve how inventory is managed. Transportation Operations and Business Initiatives have an opportunity to undertake transformative change in this area. The OCA is confident that the passion and motivation shown by staff toward their daily work activities can be harnessed to build collective ownership and undertake this courageous change.

The OCA would like to thank Transportation Operations, Business Initiatives and other participants for their openness, enthusiasm and contributions throughout this project. We look forward to following up with management in the future to see the progress of their action plans and their impact on safeguarding the City’s inventory.