



HARFORD COUNTY, MARYLAND

Office of the County Auditor

AUDIT OF DPW INVENTORY CONTROLS

Report Number:
2023-A-09

Report Date:
2/27/2023

Council Members and County Executive Cassilly:

In accordance with Section 213 of the Harford County Charter, we have performed an audit of the Department of Public Works (DPW) Inventory Controls for the period of 7/1/2021 through 12/31/2022 and inspection of inventory on hand on various dates through 1/13/2023. This audit was conducted as part of the County Auditor’s risk-based Annual Audit Plan approved by the County Council for fiscal year 2023.

The objective of the audit was to determine if the Department of Public Works (DPW) has adequate controls in place to ensure that inventory is properly protected from loss and can be accounted for. The scope of this review was limited to DPW’s inventory control processes and did not include a review of inventory included in the County-wide inventory system or the related County-wide processes. The results of the audit, our findings and recommendations for improvement are detailed in this report.

We would like to thank the members of management for their cooperation during the audit; they have been provided an opportunity to respond to this report; the responses provided follow the Issues and Corrective Actions.

Sincerely,
Chrystal Brooks, CPA
Chrystal Brooks
County Auditor

CONCLUSIONS

Our opinion, based on the evidence obtained, is DPW inventory is well protected from loss, but processes can be improved to ensure the most efficient procedures are documented and implemented consistently across the Department. This assessment is based on the strengths and weaknesses identified for the operational objectives below.

Business Process Objective	Assessmentⁱ
Inventory items are properly tracked	Generally Effective
Inventory is held securely	Effective

ISSUES AND CORRECTIVE ACTIONS

2023-A-09.01 Highways Inventory missing from AssetWorks

The Division of Facilities & Operations, under the Director of Administration, is responsible for the tracking and surplus of County inventory. Within each department, inventory managers are responsible for tracking supplies, materials, parts, equipment, computers, and furniture and providing updates to Facilities and Operations. The methods and systems used to track and manage inventory vary between department and are often at the discretion of the inventory manager. It is County policy to request an individualized number (i.e., asset tag) for all assets purchased for over \$500 so that they can be tracked by Facilities and Operations. The purpose of the centralized inventory tracking to ensure significant items are recorded for accounting and insurance purposes. Not recording inventory increases the risk that theft or loss would not be detected.

During our review of the inventory practices for Public Works, we found that Highways Maintenance does not report equipment over \$500 to Facilities & Operations and thus those items are not given County asset tags or tracked in the County's asset management system, AssetWorks.

Highway Maintenance should request asset tags for equipment over \$500 to ensure they are captured in the County's AssetWorks system.

Management Response: Highways maintenance has had preliminary conversations with Facilities and Operations, and will share their asset list with F&O to make sure equipment over \$500 is captured in the County's AssetWorks system.

Expected Completion Date: 3/1/2023

2023-A-09.02 - Inventory Procedures Consistency - Water/Sewer

The Division of Water & Sewer is made up of four bureaus: Administration, Engineering, Maintenance, and Operations. To increase accuracy and efficiency within the Division, the CityWorks system is used to track inventory, infrastructure assets and related work orders. While each of the divisions is using the same system, we found that inventory and equipment management processes between the divisions is not consistent, and some current procedures could be implemented throughout to improve efficiency. Specifically:

- Water & Sewer Operations has created a Parts Request system. The system allows users

to request needed parts and materials so that inventory purchases are reviewed, approved and then allocated to the relevant work orders when received. Within the Maintenance bureau, these functions are manual; there is a significant reliance on the storeroom manager's institutional knowledge to track and manage inventory and equipment while managing manual parts request processes.

- Some items, such as power tools and specialized equipment, are not captured in CityWorks. Items over \$500 are tracked and tagged by Facilities & Operations; however, purchases under \$500 are not. This increases the risk of theft or loss of specialized tools and equipment valued under \$500, specifically those that are easily portable. The Maintenance bureau uses spreadsheets to track this information, but our testing found that 4 of 13 relevant items were unable to be located. While the Operations bureau utilizes CityWorks for the request, approval, and purchase of tools, they do not continue to track them as inventory items in CityWorks so there was no way to identify them for testing.

- Manual adjustments to inventory are not approved or reviewed within CityWorks. When staff need parts from the storeroom, they will complete an entry log at the storeroom office indicating work order number and a description of the project. If there is no work order number, an explanation should be included, for instance, "emergency repair". Routinely, storerooms clerks will update CityWorks from the manual log, but there are occasions where items are taken and not logged due to human error. Manual adjustments are routinely made to correct inventory records. Those adjustments are made without review or approval. CityWorks is not currently configured to report data on manual adjustments, though this functionality does exist.

Reducing the reliance on manual processes would improve efficiency. As long-tenured employees leave County service, the risk of losing institutional knowledge increases. Developing and documenting standardized inventory policies and procedures would facilitate consistency.

We recommend management document procedures for Water and Sewer inventory that, when reasonably possible, will be consistent across its bureaus. Among many topics, those procedures should address parts requests, small item tracking, manual adjustments and periodic monitoring.

Management Response: The Division of Water & Sewer commits to consistent accountability and compliance with County policy for inventory control. The division uses CityWorks as its computerized maintenance management system (CMMS), for which it is a powerful and efficient application. However, because of differences in the day-to-day

operations between Maintenance and Operations, we do not see a benefit in adopting the same procedures for both.

On one hand, for Water & Sewer Operations the linking of parts and materials to complex industrial plant and maintenance activity is useful and will continue through CityWorks. However, CityWorks does not provide the same efficiency to Water & Sewer Maintenance due to the unexpected and contingent nature of many of their work activities. Often a range of parts are sent out with the crew to improve the efficiency of making a repair. From the storeroom operators' perspective, it is much more efficient to assign only the parts actually used to the work order and return the unused parts to the shelves. This method of tracking parts before entering the parts request in CityWorks eliminates the need for multiple entries.

The Division of Water & Sewer will continue to follow County policy to identify and track items over \$500 through F&O and the County's AssetWorks system.

Considering manual adjustments of inventory in CityWorks, the application does not have the function for approval of changes. As an alternate control we will explore using a monthly report of changes to be provided to management staff.

The Division of Water & Sewer will prepare updated written procedures for managing parts requests and inventory controls in accordance with County policies. The procedures may include provisions for management review of manual adjustments to the CityWorks inventory.

Expected Completion Date: 7/1/2023

2023-A-09.03 - CityWorks System Access

Water & Sewer (W&S) inventory and equipment are primarily tracked using the CityWorks application. The system's primary function is management of infrastructure data and related maintenance and repair Work Orders. It also tracks inventory quantities and locations, and parts requests and allows materials/equipment to be allocated to work orders for cost accounting. Employees within W&S are assigned roles in the system depending on the nature of their jobs. The CityWorks system is external facing and accessible from outside the County's intranet.

We reviewed various aspects of the system to confirm system access was appropriate. We

found that most user accounts were assigned to current employees or contractors and role configurations were appropriate. However, two generic user IDs were active and could allow unnecessary access to the system. We were provided a system walk-thru, reviewing the user ID registry and observed the deactivation of unnecessary and active generic user IDs.

According to the National Institute of Standards and Technology (NIST), (SP 800-53 Rev. 4 PS-4a), an "organization, upon termination of individual employment [d]isables information system access within [an] organization-defined time period". In addition, to maintain file integrity, accounts should be disabled, rather than deleted.

We found that the process to deactivate system users who no longer required access is not always followed. When an employee separates or transfers from their position, a CAR form is created, which includes access to systems to be disabled. According to the system administrator, in some cases, he is not made aware of separation or transfer immediately through formal processes. Given that the CityWorks system is accessible from outside the County's network, separated employees with active accounts could access the system and change inventory or work order records.

We recommend refresher training be provided to staff responsible for completing computer access/revocation request forms to ensure all relevant systems are captured.

Management Response: Refresher training will be provided to administrative staff responsible for completing computer access/revocation requests for Division employees. The training will instruct them to provide notification to the CityWorks Administrator for any Division employee that transfers or separates from county service. Administrative staff will be provided this training shortly and then are expected to update their work process to accommodate this change.

Expected Completion Date: 3/1/2023

MANAGEMENT RESPONSE

Management appreciates the review and suggestions of the Auditor and will consider carefully how to increase our ability to track inventory items less than \$500.00 without decreasing service levels to the public. In addition to refresher training on inventory control, management will explore system enhancements such as bar code scanning of equipment, parts, tools and items to be deployed and returned that may reduce the manual recording burden that can interfere with prompt and efficient service or repair to critical and necessary systems.

BACKGROUND, OBJECTIVES, SCOPE, AND METHODOLOGY

The Department of Public Works (DPW) is responsible for the construction and maintenance of County infrastructure including roads, water and wastewater, and solid waste management. DPW consists of the Office of the Director as well as the Divisions of Highways, Water & Sewer, and Environment & Sustainability. In order to operate and maintain the County's roadways, water and sewer system and related infrastructure, Highways and Water & Sewer Maintenance and Operations must have on-hand and readily available thousands of parts, supplies, and equipment. As of the conclusion of Fiscal Year (FY) 2022, inventory within DPW totaled \$4.76 million, all within either Highways (\$1.77 million) or Water & Sewer (\$2.99 million). Supplies and Materials for DPW in FY2021 and FY2022 totaled \$7.74 million and \$11.11 million, respectively.

The audit approach focused on testing the key controls that address management's objectives. Our audit procedures included interviewing personnel, observation and testing as described in the table below.

Process / Control Objective	Scope of Review
Parts Requests and Approvals	
Parts requests must be approved and linked to an open Work Order	<ul style="list-style-type: none"> • For a sample of relevant purchases: <ul style="list-style-type: none"> ○ Confirm they were entered into inventory records ○ Confirm requests were approved and linked to an open Work Order
Parts inventory links to the Work Order system	
Inventory Tracking	
Employees enter changes in the relevant inventory management systems when items are purchased, moved, or disposed of	<ul style="list-style-type: none"> • For a sample of items in the recorded inventory: <ul style="list-style-type: none"> ○ Confirm they exist ○ Confirm they are stored where and/or with whom the record indicates ○ Confirm they are assigned an inventory number ○ If applicable, confirm they were surplus according to County policy

Process / Control Objective	Scope of Review
Inventory is assigned to a person, crew or storage location when received	<ul style="list-style-type: none"> • Confirm purchases followed the proper approval path prior to issuance • Confirm items were 'Issued' to the proper person
Items over \$500 are captured in the County-wide inventory management system and given asset tags	<ul style="list-style-type: none"> • For a sample of items observed on site, confirm they were recorded in the inventory records • Review the salt inventory records for a sample of snow/ice-related events
Logical access to change records is limited	<ul style="list-style-type: none"> • Confirm user access and roles are appropriate for the CityWorks and IMS inventory systems
Physical Security	
Physical access is limited through the County swipe badge system	<i>This control was tested in a separate audit of Facilities Access Controls</i>
Inventory Review	
Inventory managers perform and document routine reviews of inventory, investigating missing items	<ul style="list-style-type: none"> • Confirm routine reviews and evaluations of inventory are performed, reconciliations occur, and identified issues are corrected

Areas for improvement are described in the Issues and Corrective Actions section of this report.

Harford County management is responsible for establishing and maintaining effective internal controls. Internal control is a process designed to provide reasonable assurance that objectives pertaining to the reliability of financial records, effectiveness and efficiency of operations including safeguarding of assets and compliance with applicable laws, rules and regulations are achieved. Because of inherent limitations in internal control, errors or fraud may nevertheless occur and not be detected.

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings

and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Report Distribution:

Mr. Joseph Siemek, Director of Public Works
Mr. William Bettin, Deputy Director Division of Water & Sewer
Mr. Steven Walsh, Deputy Director Division of Highways
Mr. Robert McCord, Director of Administration

Audit Team:

Chrystal Brooks
CPA, CIA, CGAP, CISA, CGFM, CRMA
County Auditor

Brad DeLauder, CPA, CIA
Senior Auditor

ⁱ Definitions

Effective: The design and effectiveness of the internal control environment address key risks. The business unit complies with external laws and regulations, and internal policies, procedures, and guidelines. Business processes are managed effectively resulting in achievement of expected outcomes.

Generally Effective: The design and/or effectiveness of the internal control environment generally address key risks; however, the number and severity of findings relative to the size and scope of the business unit being audited indicate that some minor areas of weakness in the control environment need to be addressed. Isolated instances of non-compliance with external laws and regulations, and internal policies, procedures and guidelines may exist. Business processes may not be managed effectively in all areas resulting in reduced achievement of expected outcomes.

Not Effective: The design and/or effectiveness of the internal control environment does not address key risks. Non-compliance or historical patterns of non-compliance with key regulatory requirements and internal policies, procedures and guidelines exist which expose the audited entity to financial, reputational, and operational risks. Business processes are not managed effectively and expected outcomes are not achieved.