

Performance Audit

**DEPARTMENT of PUBLIC WORKS**

**EQUIPMENT INVENTORY**

Report by the  
Office of City Controller

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December 2013



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December 3, 2013

To the Honorable: Mayor Luke Ravenstahl and  
Members of Pittsburgh City Council:

This performance audit of *Department of Public Works Equipment Inventory* was conducted pursuant to Section 404(c) of the Pittsburgh Home Rule Charter. The audit examines the procedures used by the Department of Public Works for equipment procurement and inventory tracking.

### EXECUTIVE SUMMARY

The Department of Public Works includes the Bureau of Operations and the Bureau of Property, both of which are overseen by the Bureau of Administration. During the audit scope period, the Bureau of Operations included Street/Parks Maintenance, City Paving, Heavy Equipment, Construction, Redd Up, and Forestry divisions. The Bureau of Property consists of the Facilities Maintenance and Graffiti Abatement units.

The DPW Operations Manager oversees equipment inventory identification and tracking for the Department. DPW inventories capital assets and all mechanized and gas powered equipment. Capital assets are vehicles, construction and other equipment which are valued at \$5,000 or more, have an estimated useful life in excess of one year and are generally depreciable. Hand tools and other electrical equipment are not inventoried.

### Findings and Recommendations

#### DPW Identification /Inventory Control Numbers

**Finding:** The Heavy Equipment division faxes vehicle information to the Operations Manager while the City Garage utilizes e-mail to update inventory information.

**Recommendation:** The Equipment Inventory Change form used by the Heavy Equipment Division should be on-line rather than paper.

**Finding:** Most orders, outside of vehicles and heavy construction equipment, are delivered directly to the division that placed the order because of space limitations at the Heavy Equipment yard and the efficiency of being received at the end user destination.

**Finding:** Division personnel are supposed to bring the equipment to Heavy Equipment for inventory tagging before it is put into use but do not always do so on a timely basis. The auditors found new equipment that was not numbered in both the Third and First divisions, although in both cases the equipment was segregated from the tools in use and kept locked until it could be given an ID number.

**Recommendation:** DPW Administration should work with its divisions to develop a system by which all equipment delivered to the division can be assigned a DPW ID number and entered into the DPW inventory database in a timely manner. This would ensure that all equipment delivered to onsite locations is accounted for and save division personnel a trip to the Heavy Equipment division.

#### Non-Uniform Equipment Ordering

**Finding:** There are several contracts available for equipment purchases and the decentralized ordering process has led to mixed brands of Public Work equipment.

**Finding:** DPW purchased 106 pieces of light equipment between the years 2011-12, covering ten equipment categories. (Categories with a single purchase were not included).

**Finding:** Of the 106 light equipment pieces purchased, 83 (78%) were bought from a primary brand and 23 pieces (22%) were purchased from secondary, or off, brands. Only one equipment category, Weed Whackers, was purchased entirely from a single manufacturer.

**Finding:** The decentralized ordering model results in a variety of brands of the same type of equipment. This leads to a need for multiple types of repair parts and cost variances among similar items.

**Recommendation:** Unless there is a compelling reason to use multiple brands for the same category of equipment, DPW should identify a preferred brand of equipment to provide uniformity of cost, operation and repair.

#### Inventory Control

**Finding:** Vehicle inventories and repair histories are maintained by the City Garage. Capital asset equipment, including vehicles, is inventoried by DPW and the City Fixed Asset Manager.

### Division Inventory Verification

**Finding:** The DPW Administrative office does not conduct a physical inventory count, but relies on the divisions to verify its inventory.

**Recommendation:** If the DPW Administrative Office lacks the manpower to provide a full inventory of all its divisions on a semi-annual basis, it should, in conjunction with the Fixed Assets Manager, strive to perform one physical count of each division annually.

### Internal Division Inventory Control

**Finding:** The First Division sign out/sign in sheet provides a good mechanism for tracking equipment taken offsite for daily use.

**Recommendation:** Daily equipment sign out/sign in sheets should be utilized at all DPW divisions to formally track off site equipment usage.

### Inventory Control Software

The Operations Manager utilizes Acela Asset Management System, a proprietary software program first used by DPW in 2003 as a Foreman Control system.

**Finding:** The Acela System is of limited use because of its age; its lack of developer support eliminates upgrades and enhanced report capabilities. It was not used in the divisions the auditors visited on-site.

**Recommendation:** DPW should move forward to replace its outdated Asset Management System with the Controlled Asset inventory module, part of the joint City of Pittsburgh-Allegheny County JD Edwards financial management system being introduced to the City. In the interim, DPW should develop a spreadsheet based program similar to its administrative inventory format but accessible to the divisions to keep its inventory current.

### Vehicular Inventories

**Finding:** It was difficult to compare the non-vehicular capital assets between DPW and Fixed Assets lists, as the primary identifying number assigned to each piece of equipment was different on each list. Only 43 of 154 items listed (28%) matched.

**Recommendation:** The DPW and the Fixed Assets manager should either determine a primary equipment number for capital assets or include both the Asset ID # and DPW ID # on the inventory lists.

**Finding:** Fixed Assets had a fleet listing of two hundred fifty two vehicles of which two hundred fifty of them were also shown on the DPW inventory list. (The Fleet Asset list only shows vehicles, not heavy equipment).

**Finding:** The DPW inventory list had twenty four vehicles that did not appear on the Fixed Assets vehicle list. Eleven of them were purchased in 2012 and have not yet been entered into the Fleet inventory list because of transitional software delays. One item of the remaining 13 was homemade and has no asset value, another was marked “deleted” and the other 11 were missing for unknown reasons.

**Recommendation:** DPW and the Fixed Assets section should reconcile their fleet lists on an annual basis.

**Finding:** DPW maintains separate inventory listings for the Heavy Equipment division and the other DPW divisions. This system makes it difficult to track heavy equipment after it is assigned from the Heavy Equipment Division to another division.

**Recommendation:** When Heavy Equipment assets are assigned to an Operations division, the piece of equipment should be transferred from the Heavy Equipment Division’s inventory list to that of the end-user division, regardless of ID #.

#### DPW Master Inventory List

**Finding:** DPW’s official inventory consisted of 1,748 pieces of equipment as of January, 2013. The inventory is split almost evenly between 876 vehicles/attachments (50.1%) and 872 maintenance tools (49.9%).

**Finding:** The First (North Side/Riverview Park) and Third (Oakland/Schenley Park) divisions have the most pieces of equipment. The Third Division had 216 (12.4%) pieces of equipment and the First Division had 202 (11.6 %) pieces of equipment.

**Finding:** The Second (Hamilton Avenue) and Sixth (28<sup>th</sup> Street) divisions have the lowest equipment inventory of the Street/Parks divisions. The Second Division had 5.1% of the equipment while the Sixth Division had 3.5%.

#### Third Division Equipment Storage Facilities Assessment

**Finding:** The main shed was large enough to store all the light equipment indoors, where it is adequately secured in three locked cages when not in use. Most of the vehicles and their attachments were also stored inside the large and open facility.

**Finding:** Some of the vehicle salt spreaders were stored outside, including newer models.

**Recommendation:** Equipment stored outside of the main shed should be placed on skids and covered with tarpaulins to protect them against moisture and the weather.

**Finding:** The Schenley Park storage areas (one storage trailer is shared with golf course maintenance equipment) and Schenley Plaza shed were organized and secure.

**Finding:** The Melanchton Street shed is used for a variety of purposes and does not have much available outdoor storage space as it is used as a salt storage and composting yard. Several items were stored somewhat randomly outside the shed.

**Recommendation:** While there is not a large amount of equipment stored in the Melanchton Street shed, the Third Division should get a complete inventory count of the items that are stored there and design a system to better organize and protect them.

#### First Division Equipment Storage Facilities

**Finding:** All three First Division storage locations had secure door/gates and locks in place to prevent theft.

**Finding:** The main facility has limited storage area. Many of the vehicles and most of the winter attachments, such as plows and spreaders, are stored outside in the parking lot areas.

**Recommendation:** DPW should look into building a metal canopy in the parking lot to store all tractor and vehicle attachments. Until then, all the stored items should be elevated off the ground by skids and covered with a tarpaulin so that they will not be exposed to moisture.

**Finding:** The Riverview Park brick shed holding the light equipment was well organized with equipment types grouped together.

**Finding:** The Riverview trailer/scooter shed had a leaking roof which could cause damage to the stored items. The equipment was covered with tarps to avoid moisture.

**Recommendation:** DPW should repair and waterproof the Riverview trailer/scooter shed roof.

#### Third and First Division Inventory Testing Results

**Finding:** At the Third Division, 193 of 211 pieces of DPW inventoried equipment (91.0%) with ID #'s were accounted for by the auditors. Including surplus and other division ID equipment, the division has a total of 212 pieces of equipment of an expected 211 items, or 100.5% of the total.

**Finding:** At the First Division, 196 of 201 pieces of DPW inventoried equipment (98.0%) with ID #'s were accounted for by the auditors. Including surplus and other division ID equipment, the division has a total of 214 pieces of equipment of an expected 201 items, or 106.5% of the total.

#### Scrapped/Decommissioned Equipment

**Finding:** Three vehicles shown on the DPW Inventory list in January were noted as scrapped by the Third Division supervisor. All three were removed by DPW Administration from its August 2013 inventory list.

**Finding:** Three scrapped vehicles were included on the First Division January inventory list. One vehicle was removed but two still remained on the August 2013 inventory list.

**Finding:** Vehicles, attachments and tools that had been scrapped and no longer in service were listed as active inventory. The presence of scrapped inventory on an active inventory list indicates that inventory status changes are not reported in a timely manner to DPW.

**Recommendation:** DPW divisions and repair shops should report all scrapped equipment in a timely manner to the OM. Decommissioned and/or destroyed vehicles are capital assets and should be better tracked and accounted for by the DPW inventory system.

**Finding:** The First Division's August 2013 inventory list had three attachments and two park tools that were identified as scrapped equipment in April by the division supervisors.

**Recommendation:** Decommissioned and scrapped equipment should be removed from the inventory list and disposed of from the yard unless useable for salvage/repair purposes.

#### Equipment with Other Division IDs #

**Finding:** Equipment with other division ID#s may have been borrowed or permanently transferred from that division.

**Finding:** Nine (9) items being used by the First Division had an ID # indicating that they were part of Heavy Equipment, State or the Fourth Division inventory.

**Finding:** Six (6) items being used by the Third Division had an ID # indicating that they were part of Heavy Equipment, Eastern, Construction or Fifth Division inventory.

### Equipment Without ID # or ID# Not Found on Inventory List

**Finding:** Some equipment had no ID # and other pieces had ID numbers but were not on the division's inventory list.

**Finding:** The Third Division had 29 extra items and the First Division had 16 extra items that were either not tagged with an ID # or that had an ID # but was not found on the division inventory list.

**Recommendation:** Unnumbered equipment should be given a DPW ID # and added to the inventory list. Equipment with an appropriate division ID # but not shown on the division inventory list should be added to the list.

### Vehicle Attachments

**Finding:** Attachments for dump and pickup trucks do not have a separate ID#. In contrast, attachments for some tractors are routinely given an ID# and are listed as separate line items on the division inventory list.

**Finding:** Some functional vehicle attachments with ID #'s remain in service after the original vehicle has been decommissioned. These extra attachments, although still in use, were inadvertently stricken from the inventory list along with the decommissioned vehicle.

**Recommendation:** All vehicle attachments should be assigned a DPW number on the inventory list, matching the vehicle ID# and carried as separate inventory items. This would provide a more accurate equipment count.

### Missing Vehicles and Attachments

The auditors accounted for all the First and Third Division vehicles. The First Division had four truck attachments and the Third Division had six attachments that could not be located by the auditors. The First Division, however, had twelve surplus truck attachments and the Third Division had sixteen.

**Finding:** There are more unnumbered surplus truck attachments than attachments that cannot be located. The auditors believe the attachments are accounted for, but need an #ID applied.

### Missing Light Equipment

**Finding:** Light equipment (park, road and shop tools) are the most difficult items for the divisions to account for during inventory because of size, mobility and breakage rate.

**Finding:** The Third Division had 12 of 89 (13.5%) of its inventoried tools unaccounted for. The First Division only had 1 of 102 (00.9%) of its inventoried tools missing, as almost all its small tools are kept in a dedicated shed at Riverview Park.

**Recommendation:** DPW Operations divisions should, if space allows, keep small park tools in a dedicated shed to improve security.

**Recommendation:** The DPW divisions should periodically check equipment to ensure that the ID#s are legible. If the ID# is not legible it should be replaced.

We are pleased that the Department of Public Works is considering how our recommendations will improve its equipment inventory purchasing and tracking.

Sincerely,

A handwritten signature in cursive script that reads "Michael E. Lamb". The signature is written in dark ink and is positioned above the printed name and title.

Michael E. Lamb  
City Controller

## INTRODUCTION

This performance audit was conducted pursuant to section 404(c) of the Pittsburgh Home Rule Charter. The audit examines the procedures and systems used by the Department of Public Works for equipment procurement and inventory tracking.

## OVERVIEW

The City of Pittsburgh Department of Public Works includes the Bureau of Operations and the Bureau of Property, both of which are overseen by the Bureau of Administration. During the audit scope period, the Bureau of Operations included Street/Parks Maintenance, City Paving, Heavy Equipment, Construction, Redd Up, and Forestry divisions. The Bureau of Property consists of the Facilities Maintenance and Graffiti Abatement units.

(In 2013, the Paving, Heavy Equipment, Construction and Redd Up divisions were transferred from the Bureau of Operations to the Bureau of Property.)

According to the City Budget, "...the mission of the Bureau of Operations is to maintain the City's infrastructure by resurfacing streets, reconstructing bridges, rebuilding walls and steps, preserving park facilities, and rehabilitating public structures. The Bureau also ensures public safety by responding to weather-related emergencies and other major disasters. The mission of the Bureau of Properties is to maintain the City's facilities and improve the aesthetic appearance of corridors throughout the City."

### Equipment Categories

For audit purposes, DPW equipment was grouped into the following categories:

**Capital assets** are vehicles, construction and other equipment which are valued at \$5,000 or more, have an estimated useful life in excess of one year and are generally depreciable. They are recorded by the City's Fixed Assets Manager and are included in the Comprehensive Annual Financial Report (CAFR). Primarily, capital assets are vehicles and construction equipment.

*Vehicles* are SUVs, vans, pick up and dump trucks used for the transport of workers and equipment/supplies for repair and construction. Vehicles usually have attachments such as plows and salt spreaders to increase their usefulness.

*Specialty Vehicles* include equipment such as mini-refuse loaders and sweepers.

*Heavy Construction Equipment* is a variety of heavy four-wheeled vehicles such as riding tractors and other machinery that are operated by mechanical power.

During the auditors' inventory count, vehicles, specialty vehicles and construction equipment were combined into a single "vehicle" category.

*Attachments:* These include vehicle attachments that are primarily used for road operations such as plows and salt spreaders, but also included flails, graders, mowers, trailers and other equipment.

**Light equipment** consists of tools that are not part of the Capital Assets group, that are valued at \$100 or more, are generally mechanized equipment and have an estimated useful life in excess of a year. Primarily, they are mechanized personal tools used for parks and street operations. During the auditor's inventory count, the Park, Street and Shop equipment items were combined into a single entry, "tools."

*Park/Forestry Equipment* includes machinery used in groundcover and soil care, such as lawn/brush mowers and leaf blowers. It also includes tools used in forestry care such as chain saws and pruners.

*Street Maintenance Equipment* is machinery that is used for street maintenance and repair, along with winter salting/snow removal. Examples include salt spreaders and plate tampers.

*Shop Maintenance/Miscellaneous Equipment* includes tools used for repair purposes, such as saws and generators, and various specialty items such as stages and rowboats.

**Hand tools** can be either non-mechanized or small electrical/battery operated tools valued at less than \$100.

#### Equipment Inventoried by DPW

In addition to vehicles, DPW inventories all mechanized and gas powered equipment. Hand tools and other electrical equipment are not inventoried.

## **SCOPE**

The audit scope is limited to examining the Department of Public Works Bureaus of Administration, Operations and Property equipment procurement, inventory and control procedures as practiced between January 1, 2011 and August 1, 2013.

Only capital assets and light equipment inventory and protocols were examined, as defined on page one of the audit overview. DPW supplies, communication equipment and office equipment were not examined.

## METHODOLOGY

The auditors interviewed the following Department of Public Works officials: the Director, Deputy Director and Operations Manager to discuss departmental equipment purchasing and inventory accountability procedures. The Deputy Director of Finance and the Fixed Assets Manager who attended the initial audit meeting at DPW discussed the City Fixed Asset inventory. Inventory lists and reports generated by DPW were examined.

Additionally, interviews were conducted on-site with the First and Third Division Supervisors, foremen and several Public Works employees.

The auditors obtained DPW inventory lists compiled on 1/9/13 and 8/1/13. The auditors used the 1/9/13 list to conduct an on-site inventory test of the First and Third Divisions, the two divisions with the most listed inventory. The August inventory list was used to track status changes between the two dates. Equipment storage facilities at both divisions were inspected and any deficiencies were noted.

## **OBJECTIVES**

1. To assess the current equipment procurement procedures used by the Department of Public Works (DPW).
2. To assess the current inventory, tracking and repair systems that are currently in place for equipment used by the DPW.
3. To assess the current equipment disposal procedures for dated or non-operational equipment of the DPW.
4. To make recommendations for improvement.

## FINDINGS AND RECOMMENDATIONS

### Equipment Procurement

Equipment procurement is need-based and initiated by each DPW division. The division supervisor sends an equipment request in the form of a Purchase Order (PO) to the DPW administrative office. The Deputy Director approves or denies the request according to need and budget constraints.

If approved by the Deputy Director, the PO is sent to the DPW Accounting section. Accounting verifies that the budget has a sufficient balance to allow the purchase and gives final approval to the PO. The division then places the order and the new equipment is delivered. The official protocol is to have all equipment other than vehicles delivered to the Heavy Equipment division then picked up by the division that ordered it. This protocol is to ensure that the equipment receives a DPW component number and is entered into the DPW inventory system.

### DPW Identification /Inventory Control Numbers

When new equipment arrives, the Heavy Equipment personnel contacts the DPW Operations Manager (OM) to obtain an open identification (ID) number which is affixed on the equipment piece. IDs identify the division in which the equipment will be used. Heavy Equipment then faxes pertinent equipment information such as year, make, model, and new ID number to the OM on a departmental Inventory Change form. The Operations Manager updates the DPW master inventory spreadsheet with the new information.

The City Garage uses a similar procedure to obtain component numbers to affix to new DPW vehicles and report new vehicle information. Employees at the Garage contact the OM to obtain a component number and email the OM a form containing all pertinent vehicle information, such as make, model, year, and VIN # so that the DPW inventory can be updated.

**Finding:** The Heavy Equipment division faxes vehicle information to the OM while the City Garage utilizes e-mail to update inventory information.

### **RECOMMENDATION NO. 1:**

The Equipment Inventory Change form used by the Heavy Equipment Division should be on-line rather than paper.

**Finding:** Most orders, outside of vehicles and heavy construction equipment, are delivered directly to the division that placed the order, both because of space limitations at the Heavy Equipment yard and the efficiency of being received at the end user destination.

**Finding:** Division personnel are supposed to bring the equipment to Heavy Equipment for inventory tagging before it is put into use but do not always do so on a timely basis. The auditors

found new equipment that was not numbered in both the Third and First divisions, although in both cases the equipment was segregated from the tools in use and kept locked until they could be given an ID number.

**Finding:** Divisions could potentially put equipment to immediate use without obtaining an ID number.

### **RECOMMENDATION NO. 2:**

DPW Administration should work with its divisions to develop a system by which all equipment delivered to the division can be assigned a DPW ID number and entered into the DPW inventory database in a timely manner. This would ensure that all equipment delivered to onsite locations is accounted for and save division personnel a trip to the Heavy Equipment division.

One method to comply with this recommendation would be for the DPW Administration to pre-assign several inventory numbers to each division. Then, when equipment is received, a number can be easily assigned and e-mailed or faxed to the Operations Manager.

### **Non-Uniform Equipment**

Equipment orders by the DPW divisions are requested through Public Work's Administrative Bureau, and once approved, the order is placed by division personnel.

**Finding:** There are several contracts available for equipment purchases and the decentralized ordering process has led to mixed brands of Public Work equipment.

Table #1 on the following page illustrates the number of varying equipment brands purchased in 2011 and 2012 by DPW divisions for the same type of equipment:

**Table #1- Brands of Light Equipment Purchased 2011-12**

| <b>Equipment</b>          | <b>Purchased<br/>2011-12</b> | <b># of<br/>Brands</b> | <b># of<br/>Primary<br/>Brand*</b> | <b># of Off<br/>Brands**</b> |
|---------------------------|------------------------------|------------------------|------------------------------------|------------------------------|
| Blowers                   | 16                           | 4                      | 11                                 | 5                            |
| Chain Saws                | 28                           | 2                      | 26                                 | 2                            |
| Cut Off Saws              | 2                            | 2                      | 1                                  | 1                            |
| Mowers                    | 13                           | 4                      | 6                                  | 7                            |
| Pruners                   | 17                           | 2                      | 15                                 | 2                            |
| Rototiller                | 2                            | 2                      | 1                                  | 1                            |
| Spreader, Tractor         | 5                            | 2                      | 4                                  | 1                            |
| Spreader, Walk-<br>Behind | 5                            | 3                      | 3                                  | 2                            |
| Trimmer                   | 6                            | 3                      | 4                                  | 2                            |
| Weed Whacker              | 12                           | 1                      | 12                                 | 0                            |
| <b>2011-12 Total</b>      | <b>106</b>                   | <b>25</b>              | <b>83</b>                          | <b>23</b>                    |

*\*Primary brand = brand most purchased*

*\*\*Off brand = brands purchased in addition to the primary brand  
(Information provided by the Department of Public Works)*

**Finding:** DPW purchased 106 pieces of light equipment between the years 2011-12, covering ten equipment categories. (Categories with a single purchase were not included).

**Finding:** Of the 106 pieces of light equipment purchased, 83 (78%) were bought from a primary brand and 23 pieces (22%) were purchased from secondary, or off, brands. Only one equipment category, Weed Whackers, was purchased entirely from a single manufacturer.

**Finding:** The decentralized ordering model results in a variety of brands of the same type of equipment. This leads to a need for multiple types of repair parts and cost variances among similar items.

**RECOMMENDATION NO. 3:**

Unless there is a compelling reason to use multiple brands for the same category of equipment, DPW should identify a preferred brand of equipment to provide uniformity of cost, operation and repair.

Inventory Control

The DPW Operations Manager issues each item of equipment an ID number based on the user division. For example, the Operation Division equipment tags begin with the division number, so all PW-1 equipment is assigned to the First Division, PW-2 belong to the Second

Division, etc. The Heavy Construction Division equipment begins with a PW-7, the Asphalt Division with a PW-8, the Forestry Division with a PW-9 and the Northeast Division (Highland Park) with a PW-20. (It shares a zone with the Second Division.)

Other divisions receive a letter designation as an identifier. The Administrative Bureau equipment begins with a PW followed by a single digit number, Eastern Division (Frick Park) equipment with a PWFP, the State (Point State Park) Division with a PWSP, the Redd Up unit with a PWR, the Traffic Division with a PWT, the Facilities (Building Maintenance) Division with a PWM and the Construction Division with a PWC.

Equipment valued over \$5,000 is considered capital assets and are also recorded by the City Fixed Asset manager, who assigns the asset a different identification number. The DPW Operation Manager and the City Fixed Asset Manager keep separate inventory lists of vehicular equipment and other capital assets. An inventory of all City vehicles is also maintained by First Vehicle Services (FVS), the company that operates the City Garage under the auspices of the City Finance Department. First Vehicle Services (FVS) lists vehicles by the DPW number.

**Finding:** Vehicle inventories and repair histories are maintained by the City Garage. Capital asset equipment, including vehicles, is inventoried by DPW and the City Fixed Asset Manager.

#### Division Inventory Verification

Each Division is sent a semi-annual inventory report. The Division Supervisor is supposed to verify the status of all listed equipment and return the report to the Operations Manager. According to DPW policy, missing equipment should trigger an Incident Report filed by the division with the Pittsburgh Police. The auditors were told by DPW Administrators that division personnel sometimes sign off on the report without verifying if the equipment is there or do not bother to return the report.

**Finding:** The DPW Administrative office does not conduct a physical inventory count, but relies on the divisions to verify the inventory.

#### **RECOMMENDATION NO. 4:**

If the DPW Administrative Office lacks the manpower to provide a full inventory of all its divisions on a semi-annual basis, it should, in conjunction with the Fixed Assets Manager, strive to perform one physical count of each division annually.

The winter season would be an optimal time to conduct an annual inventory because all summer street and parks maintenance equipment, which comprises the bulk of division inventory stock, should be available at the division.

## Internal Division Inventory Control

### Daily Equipment Tracking

The First Division utilizes a daily sign out/sign in sheet to track equipment taken out of the division for use in the field. The sign out/sign in sheet includes a description of the equipment, its DPW ID# and the signature of the individual responsible for the equipment.

**Finding:** The First Division sign out/sign in sheet provides a good mechanism for tracking equipment taken offsite for daily use.

### **RECOMMENDATION NO. 5:**

Daily equipment sign out/sign in sheets should be utilized at all DPW divisions to formally track off site equipment usage.

### Tracking Equipment Sent for Repair

All divisions maintain a file of equipment sent to Heavy Equipment or First Vehicle for repair.

## Inventory Control Software

The Operations Manager utilizes Acela Asset Management System, a proprietary software program first used by DPW in 2003 as a Foreman Control system. The software originally was used to track real time equipment and crew work site assignments. However, this system is no longer supported by its vendor, Acela.

**Finding:** The Acela System is of limited use because of its age; its lack of developer support eliminates upgrades and enhanced report capabilities. It was not used in the divisions the auditors visited on-site.

### **RECOMMENDATION NO. 6:**

DPW should move forward to replace its outdated Asset Management System with the Controlled Asset inventory module, part of the joint City of Pittsburgh-Allegheny County JD Edwards financial management system being introduced to the City. In the interim, DPW should develop a spreadsheet based program similar to its administrative inventory format but accessible to the divisions to keep its inventory current.

## Vehicular Inventories

All vehicular and construction equipment that weighs over 3,000 pounds and that require inspection are received at the First Vehicle Services (FVS) garage, where they are detailed, inspected and affixed with a DPW ID number.

DPW vehicles, as most City vehicles, are generally purchased through the Equipment Leasing Authority (ELA), which keeps a departmental Fleet Listing. The Finance Department Fixed Assets also keeps an inventory list of DPW vehicles (DPW Fleet Listing) and a list of non-vehicular equipment valued at \$5,000 or more (DPW Equipment Assets).

The Fixed Assets Manager assigns its own identifying Tag Number to each capital asset item and does not list the DPW ID number or equipment serial number consistently on its Equipment Asset list. DPW uses its own ID numbers on its inventory list but does not use a Fixed Assets identifier consistently. Both use the VIN number.

**Finding:** It was difficult to compare the non-vehicular capital assets between DPW and Fixed Assets lists, as the primary identifying number assigned to each piece of equipment was different on each list. Only 43 of 154 items listed (28%) matched.

### **RECOMMENDATION NO. 7:**

The DPW and the Fixed Assets manager should either determine a primary equipment number for capital assets or include both the Asset ID # and DPW ID # on the inventory lists.

**Finding:** Fixed Assets had a fleet listing of two hundred fifty two vehicles of which two hundred fifty of them were also shown on the DPW inventory list. (The Fleet Asset list only shows vehicles, not heavy equipment).

**Finding:** The DPW inventory list had twenty four vehicles that did not appear on the Fixed Assets vehicle list. Eleven of them were purchased in 2012 and have not yet been entered into the Fleet inventory list because of transitional software delays. One item of the remaining 13 was homemade and has no asset value, another was marked “deleted” and the other 11 were missing for unknown reasons.

### **RECOMMENDATION NO. 8:**

DPW and the Fixed Assets section should reconcile their fleet lists on an annual basis.

Vehicles that go through the First Vehicle Services inspection and detailing process are given a divisional inventory number before delivered to the division. However, construction vehicles and other heavy equipment entering the DPW system through the Heavy Equipment Division are given an ID # that begins with a 7 rather than a number that corresponds to the end-user division.

**Finding:** DPW maintains separate inventory listings for the Heavy Equipment division and the other DPW divisions. This system makes it difficult to track heavy equipment after it is assigned from the Heavy Equipment Division to another division.

**RECOMMENDATION NO. 9:**

When Heavy Equipment assets are assigned to an Operations division, the piece of equipment should be transferred from the Heavy Equipment Division's inventory list to that of the end-user division, regardless of ID #.

DPW Master Inventory List

All DPW Operations equipment other than hand tools (see Definitions, Pages One and Two) is inventoried. DPW provided a spreadsheet with all the light equipment (tools), attachments and vehicles/heavy construction equipment of the divisions. DPW uses this as its master list, and conducts its own inventory semiannually by each division. The auditors organized the listed inventory by division into the following categories: tools (light equipment), vehicles and specialty/heavy equipment vehicles and vehicle attachments.

**Table #2 - DPW Equipment Inventory by Division as of January 1, 2013**  
*Data provided by the Department of Public Work*

| <b>DPW DIVISIONS</b> | <b># of Tools (Light Equip.)</b> | <b># of Vehicles, Specialty/ Heavy Equip. Vehicles</b> | <b># of Attachments</b> | <b>Total Inventory</b> | <b>% of Total Inventory</b> |
|----------------------|----------------------------------|--|-------------------------|------------------------|-----------------------------|
| Division 1           | 100                              | 37   | 65                      | 202                    | 11.6%                       |
| Division 2           | 24                               | 26   | 40                      | 90                     | 5.1%                        |
| Division 3           | 89                               | 41   | 86                      | 216                    | 12.4%                       |
| Division 4           | 64                               | 34   | 55                      | 153                    | 8.8%                        |
| Division 5           | 95                               | 31   | 53                      | 179                    | 10.2%                       |
| Division 6           | 33                               | 14   | 15                      | 62                     | 3.5%                        |
| Administrative       | 0                                | 10   | 2                       | 12                     | 0.7%                        |
| Asphalt              | 4                                | 2  | 1                       | 7                      | 0.4%                        |
| Construction         | 41                               | 16   | 8                       | 65                     | 3.7%                        |
| Eastern              | 78                               | 19   | 49                      | 146                    | 8.4%                        |
| Facilities           | 6                                | 26   | 1                       | 33                     | 1.9%                        |
| Forestry             | 89                               | 10   | 3                       | 102                    | 5.8%                        |
| Heavy                | 33                               | 51   | 13                      | 97                     | 5.5%                        |
| Northeast            | 82                               | 15   | 37                      | 134                    | 7.7%                        |
| Redd Up              | 60                               | 12   | 15                      | 87                     | 5.0%                        |
| State (Point Park)   | 74                               | 13   | 34                      | 121                    | 6.9%                        |
| Traffic              | 0                                | 20   | 22                      | 42                     | 2.4%                        |
| <b>TOTAL</b>         | <b>872</b>                       | <b>377</b>   | <b>499</b>              | <b>1,748</b>           | <b>100%</b>                 |

**Finding:** DPW’s official inventory consisted of 1,748 pieces of equipment as of January, 2013. The inventory is split almost evenly between 876 vehicles/attachments (50.1%) and 872 maintenance tools (49.9%).

**Finding:** The First (North Side/Riverview Park) and Third (Oakland/Schenley Park) divisions have the most pieces of equipment. The Third Division had 216 (12.4%) pieces of equipment and the First Division had 202 (11.6 %) pieces of equipment. Those divisions provide both street and park maintenance for their zones, which include the regional Schenley and Riverview parks. The other major City parks have their own DPW divisions: the Eastern for Frick Park, the North East for Highland Park and the State for Point State Park.

**Finding:** The Second (Hamilton Avenue) and Sixth (28<sup>th</sup> Street) divisions have the lowest equipment inventory of the Street/Parks divisions. The Second Division had 5.1% of the equipment while the Sixth Division had 3.5%.

### Inventory List Comparison Testing

The auditors based their testing on the master inventory list dated January 1, 2013 and used that listing while performing the vehicle/equipment count of the First and Third divisions. The list was then compared to the August 1, 2013 inventory list, and those results are shown on the final inventory count narrative and charts.

**Finding:** On the August list, nine unfound and scrapped items were removed from the Third Division's February list, and five new items were added.

**Finding:** On the August list, nine unfound and scrapped items were removed from the First Division's February list, and eight new items were added.

**Finding:** The changes from the January to August inventory lists indicate that there is a process in place to properly report and record DPW vehicles, attachments and equipment.

### Division On-Site Inventory Testing

The auditors did an on-site inventory testing of the two divisions with the largest equipment inventory counts based on the February inventory list. The purpose of the testing was to determine the inventory lists' accuracy and how well the divisions keep these items. Both divisions support street and park operations from multiple sites.

### Third Division Equipment Storage Facilities Assessment

The Third Division provides street and park maintenance service in the Bluff, Glen Hazel, Greenfield, Hays, Hazelwood, the Hill District, Lincoln Place, New Homestead, Oakland, Point Breeze, Regent Square, Squirrel Hill, Summerset and Swisshelm Park. This division is also responsible for the maintenance of Schenley Park, Schenley Plaza and neighborhood park and playground areas. The auditors visited the Third Division twice in April.

The division's main equipment storage shed is on Swinburne Street in South Oakland. The division also has sheds in Schenley Park, Schenley Plaza, and a composting/park & playground repair center in Hazelwood on Melanchton Avenue. All the buildings were secure and weatherproof.

**Finding:** The main shed was large enough to store all the light equipment indoors, where it is adequately secured in three locked cages when not in use. Most of the vehicles and their attachments were also stored inside the large and open facility.

**Finding:** Some of the vehicle salt spreaders were stored outside, including newer models.

### **RECOMMENDATION NO. 10:**

Equipment stored outside of the main shed should be placed on skids and covered with tarpaulins to protect them against moisture and the weather.

**Finding:** The Schenley Park storage areas (one storage trailer is shared with the golf course's maintenance equipment) and Schenley Plaza shed were organized and secure.

**Finding:** The Melanchton Street shed is used for a variety of purposes and does not have much available outdoor storage space as it is used as a salt storage and composting yard. Several items were stored somewhat randomly outside the shed.

### **RECOMMENDATION NO. 11:**

While there is not a large amount of equipment stored in the Melanchton Street shed, the Third Division should get a complete inventory count of the items that are stored there and design a system to better organize and protect them.

#### **First Division Equipment Facilities**

The First Division cares for the streets and parks of Allegheny West, Brighton Heights, Cal-Kirk, Central North Side, Chateau, East Allegheny, Fineview, Manchester, Marshall - Shadeland, Northview Heights, Perry Hilltop, Observatory Hill, Spring Garden, Spring Hill and Troy Hill. The division also maintains Riverview Park and the neighborhood park and playground areas. The auditors visited the First Division three times in April.

The First Division had three locations where equipment was stored. The main shed was located on Kilbuck Road just outside of Riverview Park. This site contained the vehicles, tractors, and their various attachments with some field equipment. The building had an office, a small garage, small lockers which held hand held items, an upper & lower outdoor lot that was used for storage of larger items and a salt dome.

The other two locations were storage sheds in the main section of Riverview Park. One building stored most of the hand held equipment such as lawnmowers, blowers, and trimmers. The other location was a large shed which held trailers, scooters, and carts.

**Finding:** All three locations had secure door/gates and locks in place to prevent theft.

**Finding:** The main facility has limited storage area. Many of the vehicles and most of the winter attachments, such as plows and spreaders, are stored outside in the parking lot areas.

**RECOMMENDATION NO. 12:**

DPW should look into building a metal canopy in the parking lot to store all tractor and vehicle attachments. Until then, all the stored items should be elevated off the ground by skids and covered with a tarpaulin so that they will not be exposed to moisture.

**Finding:** The Riverview Park brick shed holding the light equipment was well organized with equipment types grouped together.

**Finding:** The Riverview trailer/scooter shed had a leaking roof which could cause damage to the stored items. The equipment was covered with tarps to avoid moisture.

**RECOMMENDATION NO. 13:**

DPW should repair and waterproof the Riverview trailer/scooter shed roof.

Third and First Division Inventory Results

The audit inventory results are shown in Tables #3 and #4 on the following page. The definitions used:

- *Inventory* consists of the equipment with ID # from the DPW Administrative office.
- *Not Found On Site* is ID'ed equipment that could not be found or otherwise accounted for by the auditors at the division.
- *Scrapped* is equipment that is beyond repair, being kept for salvage parts or decommissioned/auctioned.
- *Borrowed* is equipment loaned to another DPW division on a long-term basis.
- *Surplus Inventory* items are tools, attachments and vehicles found on-site without any DPW-ID # or with a divisional ID # but not found on the division's inventory list.
- *Other Division ID* is equipment found at the site but with another division ID #, e.g., Heavy Equipment, Construction, Fourth Division.
- The equipment is as defined in the overview on Pages One (1) and Two (2).

**Table #3 - Inventory Results for the Third Division as of August 1, 2013**

| <b>Equipment 3rd Division</b>  | <b>Vehicles</b> | <b>Attachments</b> | <b>Park Tools</b> | <b>Street/Shop Tools</b> | <b>Total</b> | <b>%</b>      |
|--------------------------------|-----------------|--------------------|-------------------|--------------------------|--------------|---------------|
| DPW Inventory                  | 39              | 85                 | 68                | 19                       | 211          | 100.0%        |
| Not Found On Site              | 0               | -6                 | -9                | -3                       | -18          | -8.5%         |
| Scrapped                       | 0               | 0                  | -2                | 0                        | -2           | -0.9%         |
| Borrowed                       | -5              | -8                 | 0                 | -1                       | -14          | -6.6%         |
| Surplus Inventory              | 1               | 14                 | 8                 | 6                        | 29           | 13.7%         |
| Other Division ID              | 2               | 2                  | 1                 | 1                        | 6            | 2.8%          |
| <b>Total Equipment on Site</b> | <b>37</b>       | <b>87</b>          | <b>66</b>         | <b>22</b>                | <b>212</b>   | <b>100.5%</b> |

**Table #4 - Inventory Results For the First Division as of August 1, 2013**

| <b>Equipment 1st Division</b>  | <b>Vehicles</b> | <b>Attachments</b> | <b>Park Tools</b> | <b>Street/Shop Tools</b> | <b>Total</b> | <b>%</b>      |
|--------------------------------|-----------------|--------------------|-------------------|--------------------------|--------------|---------------|
| DPW Inventory                  | 38              | 64                 | 83                | 16                       | 201          | 100.0%        |
| Not Found On Site              | 0               | -4                 | -1                | 0                        | -5           | -2.5%         |
| Scrapped                       | -2              | -3                 | -2                | 0                        | -7           | -3.5%         |
| Surplus Inventory              | 0               | 8                  | 6                 | 2                        | 16           | 8.0%          |
| Other Division ID              | 5               | 3                  | 1                 | 0                        | 9            | 4.5%          |
| <b>Total Equipment on Site</b> | <b>41</b>       | <b>68</b>          | <b>87</b>         | <b>18</b>                | <b>214</b>   | <b>106.5%</b> |

**Finding:** At the Third Division, 193-of-211 pieces of DPW inventoried equipment (91.0%) with ID #'s were accounted for by the auditors. Including surplus and other division ID equipment, the division has a total of 212 pieces of equipment of an expected 211 items, or 100.5% of the total.

**Finding:** At the First Division, 196-of-201 pieces of DPW inventoried equipment (98.0%) with ID #'s were accounted for by the auditors. Including surplus and other division ID equipment, the division has a total of 214 pieces of equipment of an expected 201 items, or 106.5% of the total.

Scrapped/Decommissioned Equipment

**Finding:** Three vehicles shown on the DPW Inventory list in January were noted as scrapped by the Third Division supervisor. The items were a tractor that had caught on fire, a street sweeper

and a ¾ ton pick-up truck. All three were removed by DPW Administration from the August 2013 inventory list.

**Finding:** Three scrapped vehicles were included on the First Division's January inventory list per the Supervisor, and two still remained (street sweeper and step van) on the August 2013 inventory list.

**Finding:** Vehicles, attachments and tools that had been scrapped and no longer in service were listed as active inventory. The presence of scrapped inventory on an active inventory list indicates that inventory status changes are not reported in a timely manner to DPW.

**RECOMMENDATION NO. 14:**

DPW divisions and repair shops should report all scrapped equipment in a timely manner to the OM.

Determinations to scrap or repair a vehicle are made by City Garage personnel. The master list cannot be updated until Garage formally notifies DPW that the vehicle will be sold for scrap.

**RECOMMENDATION NO. 15:**

As capital assets, decommissioned and/or destroyed vehicles should be better tracked and accounted for by the DPW and Fixed Assets inventory systems.

**Finding:** The First Division's August 2013 inventory list had three attachments and two park tools that were identified as scrapped equipment in April by the division supervisors.

**RECOMMENDATION NO. 16:**

Decommissioned and scrapped equipment should be removed from the inventory list and disposed of from the yard unless useable for salvage/repair purposes.

Equipment with Other Division IDs #

**Finding:** Equipment with other division ID#s may have been borrowed or permanently transferred from that division.

**Finding:** Nine (9) items (one hi-lift, one grader, one skid steer, one tracked vehicle, one tractor-mower, three vehicle attachments and a blower) were being used by the First Division but had an ID # indicating that they were part of Heavy Equipment, State or the Fourth Division inventory.

**Finding:** Six (6) items (one hi-lift, one skid steer, one leaf collection box, a truck spreader, a cement mixer and a lawn mower) were being used by the Third Division but had an ID # indicating that they were part of Heavy Equipment, Eastern, Construction or Fifth Division inventory.

#### Equipment Borrowed by Other Divisions

The auditors were told by Third Division personnel that fourteen (14) items on the division inventory list (four dump trucks, a pick-up truck, four plows, four mounted salt spreaders and a rowboat) were being used by other DPW divisions. The auditors did not verify which divisions had the equipment.

#### Surplus Equipment Without ID # or ID# Not Found on Inventory List

**Finding:** Some equipment had no ID # and other pieces had ID numbers but were not on the division's inventory list.

**Finding:** The Third Division had 29 extra items that were either not tagged with an ID # or that had an ID # but was not found on the division inventory list.

The items included a pick-up truck, six truck spreaders, five plows, two weed whackers, two air compressors, two table saws, a leaf broom, a hedge trimmer, pruner, 500 pound tongs, a 55 gallon sprayer, a spreader (WB), a four gallon backpack sprayer, chainsaw, two leaf boxes and an 11 gallon compression tank.

**Finding:** The First Division had 16 extra items that were either not tagged with an ID # or that had an ID # that was not found on the division inventory list.

The items included five truck spreaders, three plows, two walk-behind spreaders, two weed whackers, one table saw, one four-gallon Chapin sprayer, one walk-behind push mower/plow and Caldwell tongs.

#### **RECOMMENDATION NO. 17:**

Unnumbered equipment should be given a DPW ID # and added to the inventory list. Equipment with an appropriate division ID # but not shown on the division inventory list should be added to the list.

## Vehicle Attachments

**Finding:** Attachments for dump and pickup trucks do not have a separate ID#. In contrast, attachments for some tractors are routinely given an ID# and are listed as separate line items on the division inventory list.

**Finding:** Some functional vehicle attachments with ID #'s remain in service after the original vehicle has been decommissioned. These extra attachments, although still in use, were inadvertently stricken from the inventory list along with the decommissioned vehicle.

### **RECOMMENDATION NO. 18:**

All vehicle attachments should be assigned a DPW number on the inventory list, matching the vehicle ID# and carried as separate inventory items. This would provide a more accurate equipment count.

## Missing Vehicles and Attachments

The auditors accounted for all the First and Third Division vehicles. The First Division had four truck attachments and the Third Division had six attachments that could not be located by the auditors. The First Division, however, had twelve surplus truck attachments and the Third Division had sixteen.

**Finding:** There are more unnumbered surplus truck attachments than attachments that cannot be located. The auditors believe the attachments are accounted for, but need an #ID applied.

## Missing Light Equipment

**Finding:** Light equipment (park, road and shop tools) are the most difficult items for the divisions to account for during inventory because of size, mobility and breakage rate.

**Finding:** The Third Division had 12 of 89 (13.5%) of its inventoried tools unaccounted for. The First Division only had 1 of 102 (0.9%) of its inventoried tools missing, as almost all its small tools are kept in a dedicated shed at Riverview Park.

### **RECOMMENDATION NO. 19:**

The DPW Operations divisions should, if space allows, keep its small park tools in a dedicated shed to improve security.

**Finding:** The Third Division had three weed whackers, two pressure washers and two walk-behind spreaders missing along with a cut-off saw, mower, hedge trimmer, blower and sprayer. The only tool missing from the First Division was a chainsaw.

**Finding:** Unnumbered equipment that matched up with Third Division items that could not be located were two weed whackers, a spreader (WB), and sprayer. It may be that they are the same items, but the ID# was either never applied or wore off the equipment during operation.

**RECOMMENDATION NO. 20:**

The DPW divisions should periodically check its equipment to ensure that its ID# is legible. If the ID# is not legible it should be replaced.



# CITY OF PITTSBURGH

## Department of Public Works

*Luke Ravenstahl, Mayor*

*Robert W. Kaczorowski, Director*

November 1, 2013

Mr. Michael E. Lamb  
City Controller  
City of Pittsburgh  
414 Grant Street, 1<sup>st</sup> Floor  
Pittsburgh, PA 15219

Dear Controller Lamb:

We have reviewed the audit recently performed by your office on the Department of Public Works, procedures and systems for equipment procurement and inventory tracking. We are looking into the audits recommendations to streamline notifications, standardizing equipment, numbering truck attachments, and currently converting to a new inventory control system.

Thank you for working collaboratively on this audit. As always, if you have any additional questions or concerns, or if I can be of any assistance, please do not hesitate to call.

Sincerely,

for Robert W. Kaczorowski  
Director

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RWK:jb

cc: Anabell Kinney, Controller's Office  
Chuck O'Neill, DPW  
Tom Paulin, DPW  
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