



CITY OF SAN ANTONIO

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September 25, 2014

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Councilman, District 8

SUBJECT: Audit Report of Public Works Fleet Maintenance

Mayor and Council Members:

We are pleased to send you the final report of the Public Works Fleet Maintenance audit. This audit began in November 2013 and concluded with an exit meeting with department management in July 2014. Management's verbatim response is included in Appendix B of the report. The Transportation and Capital Improvements and Building and Equipment Services Department management and staff should be commended for their cooperation and assistance during this audit.

The Office of the City Auditor is available to discuss this report with you individually at your convenience.

Respectfully Submitted,

Kevin W. Barthold, CPA, CIA, CISA
City Auditor
City of San Antonio

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CITY OF SAN ANTONIO
OFFICE OF THE CITY AUDITOR



Audit of Transportation and Capital Improvements and
Building and Equipment Services

Public Works Fleet Maintenance

Project No. AU14-004

September 25, 2014

Kevin W. Barthold, CPA, CIA, CISA
City Auditor

Executive Summary

As part of our annual Audit Plan approved by City Council, and as requested by management, we conducted an audit of the Transportation and Capital Improvements and Building and Equipment Services Departments, specifically, Public Works fleet maintenance. The audit objectives, conclusions, and recommendations follow:

Is fleet maintenance of Public Works equipment properly managed?

Yes, fleet maintenance is generally managed properly by Transportation and Capital Improvements (TCI) and Building and Equipment Services Department (BESD) management. However, we identified the following areas for improvement related to repairs and maintenance as well as auto parts inventory management:

- TCI personnel have not consistently complied with preventive maintenance (PM) intervals established by BESD. Additionally, PM intervals assigned to some vehicles were not in line with manufacturers' recommendations. Finally, equipment availability reports do not show availability rates by equipment type, which would enable management to more effectively monitor downtime of units that are critical to operations.
- Auto parts pricing and contracts were not being effectively monitored. Additionally, the year-end parts inventory balance for fiscal year 2013 was reported incorrectly. Furthermore, duties for issuing parts to work orders and closing work orders were not adequately segregated. Finally, auto parts inventory was not being stocked according to minimum and maximum levels established by management.

We recommended the following:

- The TCI director should ensure that preventive maintenance is performed when units are within 15% of their established preventive maintenance interval.
- The BESD director should ensure that PM intervals are appropriate for each unit.
- The TCI director should develop a process and/or system report whereby availability and downtime rates can be tracked by equipment type.
- The Director of Finance should ensure that City-approved pricelists are properly filed and made available to applicable departments; the BESD

- director should ensure that designated personnel verify correct prices accordingly.
- The BESD director should ensure that inventory and expense accounts are reconciled between SAP and FASTER after posting year-end adjustments.
 - The BESD director should ensure that duties for issuing parts to a work order and closing a work order are appropriately segregated.
 - The BESD director should reassess minimum and maximum inventory stock levels in FASTER to ensure they are in line with current needs. Additionally, the director should ensure that designated personnel order quantities within the stock levels specified for each part.

TCI, BESD, and Finance management's verbatim responses are provided in Appendix B on page 11.

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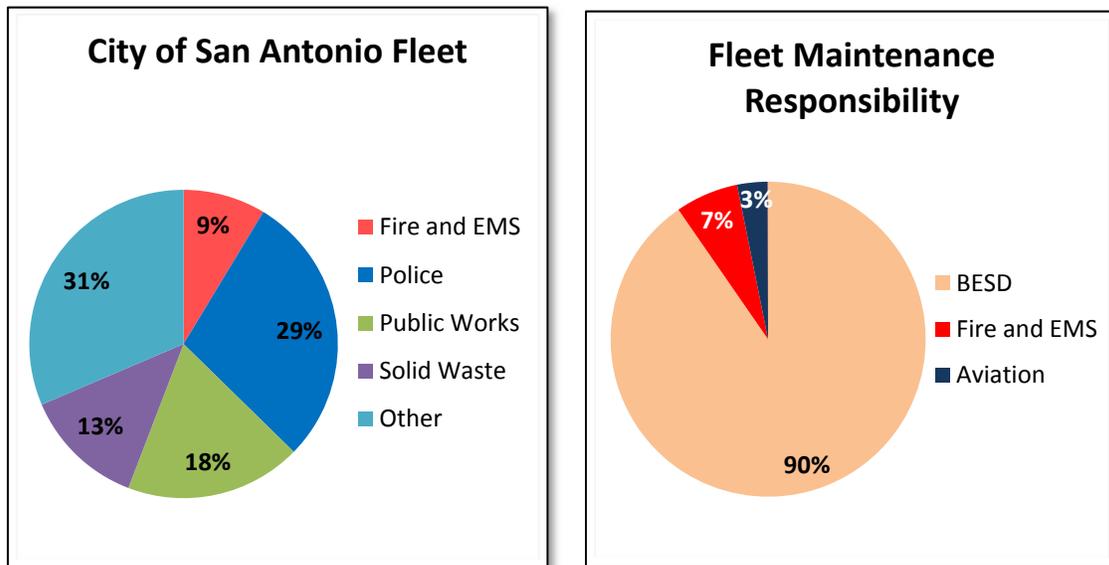
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Background

The Public Works Department was merged with the Capital Improvements and Management Services Department (CIMS) in January 2014 to become Transportation and Capital Improvements (TCI). However, because the scope of this audit was primarily 2013, this report addresses only Public Works equipment designated as such prior to the creation of TCI. Additionally, as of July 2014, Public Works equipment accounted for 93% of TCI's fleet inventory.

Public Works mission for FY2013 was “to ensure a safe, mobile and inviting community by maintaining and improving our infrastructure through an empowered, engaged and skilled workforce.” To help accomplish this mission, Public Works owned and operated about 900 vehicles and pieces of equipment throughout the City.

As of January 2014, Public Works' fleet comprised 18% of the City's entire fleet. Additionally, the Building and Equipment Services Department (BESD) was responsible for maintaining 90% of City-owned vehicles and equipment, including all fleet operated by the Public Works, Police, and Solid Waste departments, as well as a portion of the Fire and EMS fleet.



BESD is equipped to provide maintenance and repairs for TCI equipment at seven maintenance shops located around the City. The department also operates several lube and service trucks that can provide full preventive maintenance services to off-road heavy equipment in the field. BESD and TCI jointly operate fuel trucks to service equipment in the field as well.

BESD uses the FASTER system to document and track information related to fleet maintenance, including the following:

- Equipment age
- Mileage and/or engine hours per equipment unit
- Preventive maintenance intervals (i.e. intervals measured in miles, engine hours, or months in which preventive maintenance should be performed for a specific unit)
- Maintenance and repairs per unit (documented in work orders), including labor and parts performed in house or outsourced to contracted vendors
- Parts inventory
- Fuel usage
- Markup rates for parts, labor, and any administrative/overhead fees applied to completed work orders

BESD generates a work order in FASTER for each job, regardless of whether the work is done in house or outsourced to a vendor. Shop supervisors assign work orders to mechanics or technicians, who sign into the work order through FASTER and document the diagnosis and work performed. Stock clerks are responsible for issuing parts used for repairs and maintenance as requested by technicians. Supervisors are responsible for reviewing work orders for completeness and accuracy before closing them out.

Fiscal personnel use FASTER to generate monthly billing statements for each department. Statements include total labor hours and parts charged to each work order, as well as fuel consumption, ERRF contributions,¹ and administrative fees. BESD is directly billed by vendors for outsourced work, but then transfers the cost to applicable departments as “sublet” fees. The following table summarizes the total amount billed to Public Works for repairs and maintenance completed during the 2013 fiscal year:

Public Works Fleet Maintenance Costs FY 2013	
Parts	\$1,414,989
Labor	1,821,586
Outsourced (including parts and labor)	<u>907,390</u>
Total	\$4,143,965

¹ The Equipment Renewal and Replacement Fund (ERRF) essentially acts as a savings account for City departments to accumulate funds each year to replace vehicles and other expensive equipment as needed. Contribution amounts are based on a number of factors, including the equipment’s useful life and estimated replacement costs.

Audit Scope and Methodology

For most testing, the audit scope included repairs and maintenance work orders for Public Works equipment that took place between October 2012 and January 2014. However, some testing covered processes in place through March 2014.

We interviewed staff and management, analyzed work order and parts inventory data extracted directly from the FASTER system, reviewed invoices and other supporting documentation for expenses and journal entries, and observed procedures related to fleet maintenance. Testing criteria included departmental policies and procedures, administrative directives, and vehicle owner's manuals.

We tested general controls of the FASTER system, including user access controls, and conducted a series of reasonableness tests to determine the integrity of the FASTER database. Reasonableness tests included trend analyses to identify unusual patterns and sampling of various types of transactions to verify the accuracy of data input based on supporting documentation, such as vendor invoices and parts issuance logs. We relied on computer-processed data in the SAP system to validate financial information associated with fleet maintenance and repairs costs.

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.

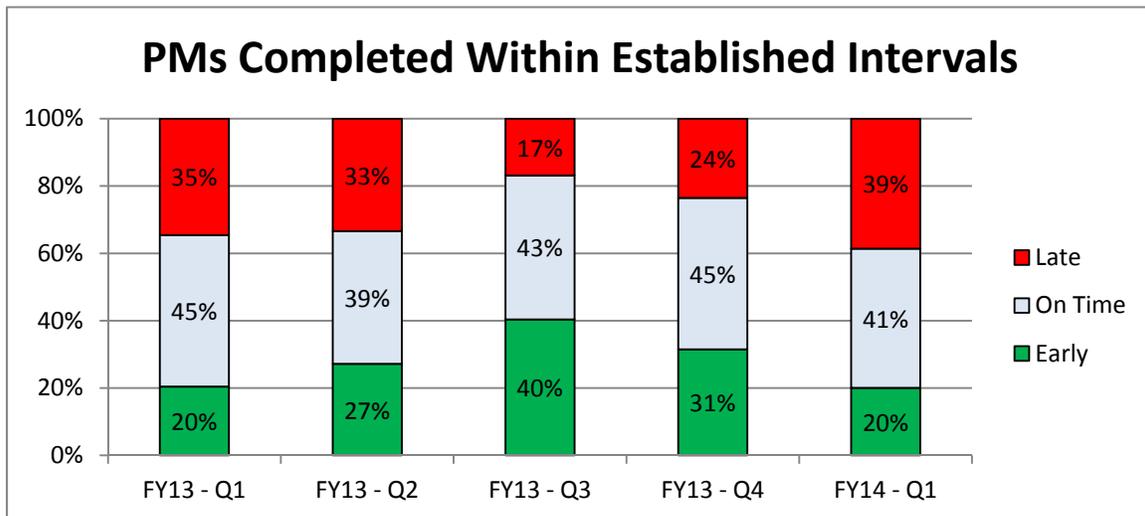
Audit Results and Recommendations

A. Maintenance and Repairs

Public Works personnel have not consistently complied with preventive maintenance (PM) intervals established by BESD. Additionally, PM intervals assigned to some vehicles were not in line with manufacturers' recommendations. Finally, equipment availability reports do not show availability rates by equipment type, which would enable management to more effectively monitor downtime of units that are critical to operations.

Preventive Maintenance Performance

Auditors determined that, between October 2012 and December 2013, less than half of all PM services performed on Public Works vehicles were completed within BESD-established intervals.² The graph below illustrates the extent to which PM services were completed within established intervals (i.e. on time), early, and late by quarter.



BESD regularly sends reports to Public Works listing units that are almost due,³ due, or past due for PM services. Public Works management is responsible for ensuring personnel take their assigned vehicles and equipment to a BESD shop for services when due. However, on average, PM services were conducted late 31% of the time and early 26% of the time during the fifteen-month period

² We considered any PM service completed within 15% of the unit's assigned interval to be within BESD-established intervals (i.e. on time). For example, a truck due for an oil change at 7,500 miles would be early if under 6,375 or late if over 8,625.

³ Per BESD management, the FASTER-generated "PM Due" report includes units that are within 15% of their respective PM intervals.

reviewed. Furthermore, we noted that PM services were late at least 50% of the time for five types of equipment that Public Works management considers critical to operations; specifically asphalt paving machines, milling machines, street sweepers, excavators, and bulldozers.

Preventive Maintenance Interval Determination

BESD created a comprehensive PM schedule for all vehicles and units citywide. The schedule provides PM intervals for 11 categories of equipment, such as "light truck/van/car" and "heavy equipment, off-road." However, such categories are overly broad, resulting in PM services not being performed within manufacturer recommended intervals for some types of equipment. For example, PM intervals for the "light truck/van/car" category are generally in line with manufacturers' recommendations for newer pickup truck models; however, we identified a 2007 Ford truck that, according to its owner's manual, required basic PM services at more frequent intervals. Similarly, Toyota Prius and Ford Taurus manufacturers recommend PM services at greater frequency than what BESD's PM schedule indicates.

Performing PMs sooner than required results in the unit having to be taken out of service prematurely, leading to higher maintenance costs and unnecessary downtime over the life of the equipment. Performing late PM services could result in costly breakdowns and repairs that might otherwise be avoided.

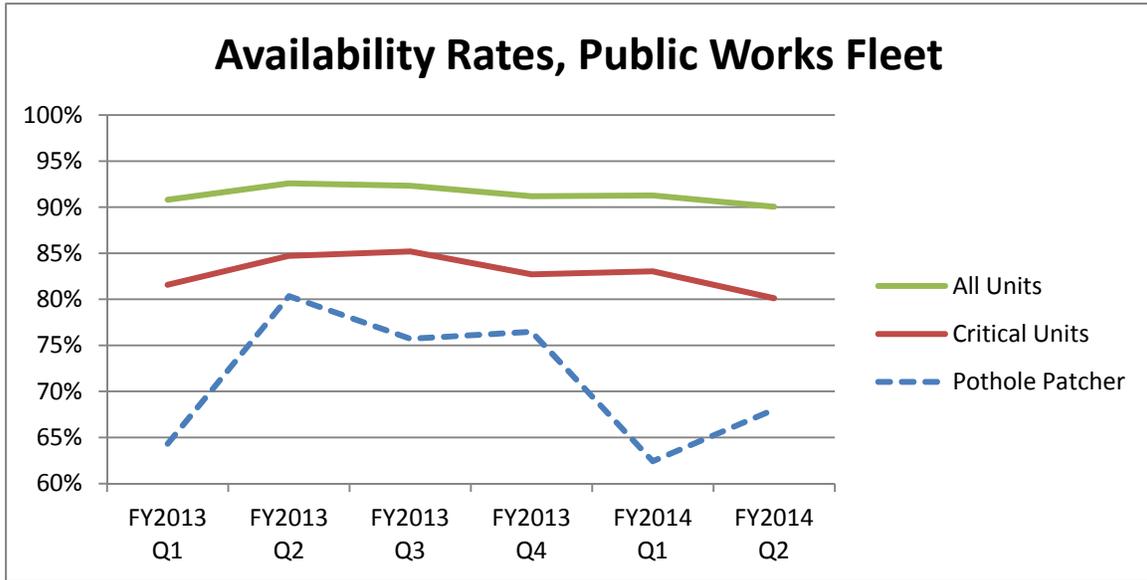
Reported Equipment Availability

Although overall availability rates for Public Works equipment, as reported by BESD management, appeared to be reasonable over the past year, we found that actual availability rates for critical equipment⁴ were significantly lower than other types of equipment.

One of BESD's performance measures for FY2014 was to help ensure that citywide fleet was available at least 90% of the time to its users. To monitor performance in this area, BESD management generates periodic reports from FASTER that provide overall availability and downtime rates of equipment by department. We generated similar reports from FASTER for Public Works equipment and noted that overall availability rates for our test period October 2012 to March 2014 were typically above 90%. However, when analyzing the detailed data used by the system to calculate these rates, we determined that quarterly availability rates for critical equipment ranged between 80% and 85%; availability rates for some critical equipment ranged significantly lower.

⁴ TCI management identified the following types of equipment as critical to operations: pothole patch trucks, asphalt milling machines, asphalt oil distributors, asphalt paving machines, asphalt slurry pug mill trucks, bulldozers, concrete batch trucks, excavators, high lift bucket trucks, street sweepers, tractor mowers, and vacuum induction trucks.

Lower availability rates for critical equipment directly affect TCI’s ability to meet public needs. For example, one of Public Work’s goals for FY2014 was to fill in 95% of reported potholes within 48 hours of notice. However, we determined that during our test period, pothole patch trucks were only available between 62% and 80% of the time.



Current BESD-generated reports don’t break out equipment availability rates by type. Consequently, TCI management lacks an effective monitoring tool to proactively address potential equipment-specific maintenance and availability issues.

Recommendations

A.1 The TCI director should ensure that preventive maintenance is performed when units are within 15% of their established preventive maintenance interval.

A.2 The BESD director should ensure that preventive maintenance intervals accurately reflect the maintenance needs of the various types of vehicles and equipment in Public Works fleet inventory.

A.3 The TCI director should develop a process and/or system report whereby availability and downtime rates can be tracked by equipment type.

B. Auto Parts Inventory Management

Auto parts pricing and contracts are not being effectively monitored. Additionally, the year-end parts inventory balance for fiscal year 2013 was reported incorrectly. Furthermore, duties for issuing parts to work orders and closing work orders were not adequately segregated. Finally, auto parts inventory was not being consistently stocked according to BESD management guidelines.

Auto Parts Contract Price Monitoring

Auditors determined that some auto parts vendors did not charge the City correct prices according to approved pricelists. We selected a random sample of 25 auto parts that were in stock at the various BESD shops, identified the price charged by vendors for the latest purchase of each item, and attempted to compare those prices to City-approved pricelists associated with vendor contracts. We found that of the 25 sampled parts, vendors had overcharged the City for 5 of them and we were unable to verify accurate pricing for 13 others because pricelists were either not filed with the respective vendor contracts, or the parts were not listed on approved pricelists.

We also analyzed purchase order data extracted from the FASTER database and determined that 51 out of 94 vendors charged the City a different price for the same part on at least one occasion during the 2013 calendar year. We calculated that the median price variance from order to order was about \$2, or 6% of the first price charged during the year. Vendors should not increase prices during a contract period without first receiving formal approval from the City; such approvals and revised pricelists are filed with vendors' contracts. However, because approved pricelists were not kept on file for all vendors, we were unable to identify the correct price for each part, or quantify the extent to which vendors had incorrectly charged the City. Based on interviews and observations we conducted at seven BESD shops throughout the City, we determined that the current ordering processes lack adequate controls to ensure vendors charge contractually agreed upon prices.

Year-End Parts Inventory Reporting

The year-end inventory balance for auto parts for FY 2013 was overstated. Auto parts inventory records are maintained in the FASTER system throughout the year. FASTER does not interface with SAP; therefore BESD fiscal personnel (Fiscal) are required to manually post adjusting journal entries to SAP at the end of each fiscal year. We determined that Fiscal mistakenly posted an adjustment in SAP to increase the corresponding asset account⁵ by \$126,692.36 rather than decrease it by that amount. The net result was an overstatement of fleet inventory by \$253,384.72, which comprised 17% of the actual year-end inventory

⁵ The asset account includes both parts and fuel inventory.

balance. Fiscal posted adjusting entries on February 28, 2014 to correct the balance in SAP after auditors notified them of the mistake. Fiscal had not reconciled the account balance in SAP with FASTER and, therefore, did not catch this error prior to closing out the fiscal year.

Segregation of Duties – Stock Clerk

Responsibilities related to ordering, receiving, and issuing auto parts inventory are properly segregated for all users, except one. Specifically, we identified a senior stock clerk who, in addition to being able to issue parts to work orders, was authorized by BESD management to re-open work orders, make corrections to parts information (e.g. parts charged to the work orders), and then close the work orders again. We found that the senior stock clerk had closed a total of 195 work orders between October 2012 and January 2014. However, we reviewed a random sample of 25 of these and verified that auto parts issued by the senior stock clerk to each work order were appropriate.

The ability to close a work order should be segregated from the ability to issue auto parts to a work order. If these responsibilities are not properly segregated, the user is able to inappropriately issue any part to any work order and close it without detection, thus providing the opportunity to conceal theft.

Inventory Level Maintenance

Auto parts inventory is not being stocked according to BESD management guidelines. BESD management assigns minimum and maximum stock levels for each part in the FASTER system. When stock clerks issue a part to a work order, the system alerts him/her if the quantity in stock drops to the minimum stock level. Clerks are then expected to order new parts, but the quantity ordered should not exceed the maximum level specified for the part.

We analyzed inventory levels as of January 2014 and found that 12% of parts were below specified minimum levels, representing potential shortages. Additionally, we identified parts that were ordered in excess of maximum levels at a total cost of \$105,875, or 11% of the total inventory balance on the test date. This inventory is at risk of becoming obsolete due to overstocking.

BESD management acknowledged that some inventory reorder/maximum points were in need of adjustment to more accurately reflect needs.

Recommendations

B.1.a The Director of Finance should ensure that approved pricing for all vendor contracts is maintained within vendor files and made available to applicable departments.

B.1.b The BESD director should ensure that designated personnel verify correct prices according to approved pricelists when placing orders.

B.2 The BESD director should ensure that inventory account balances in SAP reconcile to corresponding balances in FASTER at year-end.

B.3 The BESD director should ensure that duties related to work order processing are appropriately segregated by removing the ability for any stock clerk to close work orders in FASTER.

B.4 The BESD director should reassess minimum and maximum inventory stock levels in FASTER to ensure they are in line with current needs. Additionally, the director should ensure that designated personnel order quantities within the stock levels specified for each part.

Appendix A – Staff Acknowledgement

Mark Bigler, CPA-Utah, CISA, CFE, Audit Manager
Bruce Coleman, CIA, Auditor in Charge
Michael Hurlbut, Auditor

Appendix B – Management Response



CITY OF SAN ANTONIO

P.O. Box 839966
SAN ANTONIO TEXAS 78283-3966

August 27, 2014

Kevin W. Barthold, CPA, CIA, CISA
City Auditor
San Antonio, Texas

RE: Management's Corrective Action Plan for the audit of Public Works Fleet
Maintenance

Building and Equipment Services, Transportation and Capital Improvements, and
Finance departments have reviewed the audit report and have developed the Corrective
Action Plans below corresponding to report recommendations.

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
A1	Timely preventive maintenance The TCI director should ensure that preventive maintenance is performed when units are within 15% of their established preventive maintenance interval.	6	Accept	Mike Frisbie Director Transportation and Capital Improvements	9/30/14

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
	<p><u>Action plan:</u> TCI Managers will ensure proper level of training for all vehicle and equipment operators on the importance of Preventive Maintenance. The TCI Fleet Coordinator will distribute a Preventive Maintenance Report internally to TCI staff weekly to ensure staff is notified when units are due for preventive maintenance.</p> <p>Employees, at all levels, responsible for equipment and vehicles shall be held accountable for adhering to the Preventative Maintenance schedule established by BES in support of the Citywide Goals of Sustainability and Fiscal Responsibility.</p>				
A2	<p>Preventive maintenance intervals</p> <p>The BESD director should ensure that preventive maintenance intervals accurately reflect the maintenance needs of the various types of vehicles and equipment in Public Works fleet inventory.</p>	6	Accept	Jorge A. Perez Director Building and Equipment Services	10/31/14
	<p><u>Action plan:</u> BESD maintains preventive maintenance schedules for over 4400 vehicles and equipment. Staff is currently validating the preventive maintenance intervals based on the manufacturer's recommendations and will update the FASTER system. FASTER is used to document and track information related to fleet maintenance.</p>				
A3	<p>Equipment Availability Reports</p> <p>The TCI director should develop a process and/or system report whereby availability and downtime rates can be tracked by equipment type.</p>	6	Accept	Mike Frisbie Director Transportation and Capital Improvements	9/30/14

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
	<p><u>Action plan:</u> TCI operates 956 fleet units including equipment and vehicles throughout the department that range from light duty sedans to large heavy duty units such as large flat bed trucks, excavators and dozers. Each day, bucket trucks, street pavers, tractor mowers, and other fleet units play a critical role in the delivery of the Department's core services. TCI depends upon these fleet units to be operational, maintained and repaired in order to maintain San Antonio's infrastructure.</p> <p>With assistance from Fleet Services, a daily report indicating TCI's fleet availability will be developed.</p>				
B1a	<p>Auto Parts Pricing</p> <p>The Director of Finance should ensure that approved pricing for all vendor contracts is maintained within vendor files and made available to applicable departments.</p>	8	Accept	Troy Elliott Director Finance	4/01/15
	<p><u>Action plan:</u> The Finance Department has initiated a multi-step approach to address the issues of catalog controls and contract pricing and is working with ITSD to create an intranet site which will make vendor catalogs available to all City employees. The intranet site will create a central repository of vendor catalogs and provide City staff with a searchable source of catalogs to verify contract pricing. The website is scheduled to be operational by October 1, 2014.</p> <p>In addition, Finance is in the process of transitioning fleet contracts from ECC to SAePS as contracts in ECC do not contain line item pricing. Finance is also exploring the feasibility of partnering with a third party vendor to further enhance the use of internal catalogs.</p> <p>Finance will work with BESD staff to standardize invoicing procedures with vendors to ensure accuracy of invoices and decrease the number of duplicate invoices submitted.</p>				
B1b	<p>Auto Parts Pricing</p> <p>The BESD director should ensure that designated personnel verify correct prices according to approved pricelists when placing orders.</p>	9	Accept	Jorge A. Perez Director Building and Equipment Services	9/30/14

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
	<p>Action plan: BESD manages approximately 180 parts and service contracts and is dependent on Finance providing copies of vendor pricing catalogs so that BESD parts staff can verify pricing. Parts staff is identifying the most commonly used parts to be input into the SAePS central catalog to streamline procurement and price validation. Parts acquisition procedures have been revised to ensure parts pricing validation and training will be held for parts staff.</p>				
B2	<p>Year-End Inventory Reconciliation The BESD director should ensure that inventory account balances in SAP reconcile to corresponding balances in FASTER at year-end.</p>	9	Accept	Jorge A. Perez Director Building and Equipment Services	Completed (July 2014)
	<p>Action plan: The major error that occurred in the end of year inventory journal entry (JE) was the fact that the inventory was debited when it should have been credited. This was a user error which happened due to an incorrect reading. The error was discovered after the fiscal year closed. Procedures have been developed to verify and ensure that JEs are posted correctly in SAP by reconciling FASTER reports to SAP reports. The reconciliation will be done prior to year end close.</p>				
B3	<p>Segregation of Duties The BESD director should ensure that duties related to work order processing are appropriately segregated by removing the ability for any stock clerk to close work orders in FASTER.</p>	9	Accept	Jorge A. Perez Director Building and Equipment Services	Completed (July 2014)
	<p>Action plan: BESD has one Stock Control Crew Leader who reviews all work orders for parts issued and is responsible for correcting errors. To ensure proper segregation of duties, only Fleet Maintenance Superintendents will be allowed to close work orders. If changes to parts issued need to be made, the Stock Control Crew Leader will enter the correction and the Fleet Maintenance Superintendent will close the work order.</p>				

Recommendation					
#	Description	Audit Report Page	Accept, Decline	Responsible Person's Name/Title	Completion Date
B4	<p>Inventory Stock Levels</p> <p>The BESD director should reassess minimum and maximum inventory stock levels in FASTER to ensure they are in line with current needs. Additionally, the director should ensure that designated personnel order quantities within the stock levels specified for each part.</p>	9	Accept	<p>Jorge A. Perez Director Building and Equipment Services</p>	10/31/14
<p><u>Action plan:</u> Supply contracts were not obtained in a timely manner and impacted reordering points for parts. On several occasions parts were ordered in excess of the maximum inventory level until new contract could be obtained. BESD and Finance have since put in place hold over renewals, informal contracts, and new annual contracts. BESD is establishing a procurement calendar in which to manage part supply contract renewals and solicitation processes.</p>					

Audit of Transportation and Capital Improvements and Building and Equipment Services
Public Works Fleet Maintenance

We are committed to addressing the recommendations in the audit report and the plan of actions presented above.

Sincerely,



Jorge A. Perez
Director
Building & Equipment Services Department

8/27/14

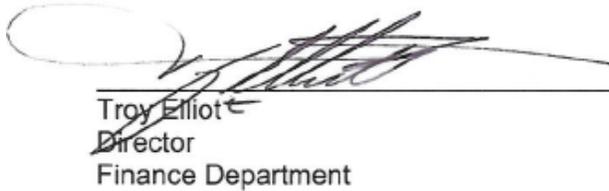
Date



Mike Ensbie
Director
Transportation & Capital Improvements Department

8-29-14

Date



Troy Elliot
Director
Finance Department

8/27/14

Date



Peter Zanoni
Deputy City Manager
City Manager's Office

9-10-14

Date



Ben Gorzell
Chief Financial Officer
City Manager's Office

9/12/14

Date