METRO TRANSIT
PHYSICAL INVENTORY AUDITS

BODY SHOP
NICOLLET GARAGE
BLUE LINE LRT FACILITY
CENTRAL WAREHOUSE - FLOOR
CENTRAL WAREHOUSE - CAROUSEL
SYSTEM-WIDE CYCLE COUNTS

PROGRAM EVALUATION AND AUDIT

METROPOLITAN COUNCIL

April 18, 2014

INTRODUCTION

Background

The Txbase System, implemented in 1995-96, consists of interactive computer software designed to provide an integrated inventory control, inventory management, purchase order management, materials requisition management and accounts payable matching system. Thirteen stockrooms, plus the Central Warehouse Floor and Carousel locations use Txbase to control and account for parts and supplies used in Metro Transit operations.

To ensure timely, cost-effective maintenance for Metro Transit vehicles, many commonly used parts and equipment are stored at any one of the 13 stockrooms plus the two Central Warehouse storage facilities. On-site inventory availability is critical to the maintenance and safe operation of Metro Transit buses, trains and facilities. This presents challenges for accurate accounting for inventory and continuing control of stockrooms, especially considering they are not staffed at all hours, and that access is required, 24 hours a day, seven days a week. When inventory counts are incorrect, the value of inventory will be misrepresented. Beyond the immediate financial implications, errors in inventory counts can generate excessive ancillary costs associated with searching for missing stock and unnecessary expediting of incoming and outgoing materials. It can also drive changes in forecasts resulting in shortages or excess and obsolete inventory. As a result, stockrooms have been viewed by Metro Transit and Program Evaluation and Audit (Audit) as relatively high risk and Audit has reviewed four to five stockrooms annually for procedural compliance, accuracy of records, and identification of possible missing items.

Stockkeepers at each stockroom are required to conduct daily inventory cycle counts Monday through Friday (Metro Transit Material Management *Policy 06.06.07, rev. 4, July 22, 2009, Cycle Counts*). A cycle count consists of a stockroom specific random selection of part numbers, physically counted by the stockkeeper and compared to the Txbase inventory. Any part number variance of ten physical units or $50 requires that the lead stockkeeper identify the reason for the variance.

Audit began monitoring daily stockroom inventory cycle count variance data in September 2009 as an additional method for assessing risk. Stockrooms with variance rates exceeding 10% are selected for review as are stockrooms in which significant internal control problems had been identified during prior audits. Neither of these conditions applies to any of the stockrooms selected. The five stockrooms chosen for review were selected because they had last been audited in January 2011.

Purpose

- To ensure that observed stockroom inventories are the same as those recorded in Txbase.
- To verify that daily inventory cycle counts are performed as required.
- To confirm that stockrooms and related inventory are managed and operated according to Metro Transit and Council policies and procedures.
- To provide recommendations for strengthening internal controls so that deviations identified during this audit do not occur systematically in the future.

Scope

Audits were conducted at the Body Shop, Nicollet garage and Blue Line LRT Facility stockrooms, and the Central Warehouse Floor and Carousel locations. Samples were drawn from all inventory items listed in Txbase as of the closing of inventory transactions on the day prior to the day the actual count was taken, adjusted for any changes in the hours prior to the audit and compared to the actual count.

Assurances

This audit was conducted in accordance with the Institute of Internal Auditors' *International Standards for the Professional Practice of Internal Auditing* and the U. S. Government Accountability Office's *Government Auditing Standards*.

Methodology

After eliminating inventory items with zero extended cost, Audit selected a statistically significant, random sample with a 95% level of confidence and a 5% error rate plus a judgmental sample of the highest extended value items. Universe and sample stratification data based on extended cost for the five locations are included at Exhibit I. Audit physically counted the selected inventory items and compared that count to the quantity stated in Txbase. The following methods of inquiry were also used:

- Differences were noted and discussed with Material Management personnel.
- Findings and results were recorded and summarized.
- The implementation of prior audit recommendations was reviewed.
- Inventory Management and Bus Maintenance policies and procedures were reviewed.
- Daily cycle count results were monitored and analyzed.

OBSERVATIONS

Physical inventory counts were performed at the Body Shop and the two Central Warehouse locations on February 26, 2014 and the Blue Line LRT Facility and Nicollet garage stockrooms on February 28, 2014. Observations regarding those audits follow. Statistical data is also summarized in the exhibits listed below which are included at the end of this report.

- Exhibit I: Universe & Sample Stratification Data for the five stockrooms.
- Exhibit II: Preliminary Statistical Data Summary for the five stockrooms. This is the raw data gathered at the time of physical inventory count.
- Exhibit III: Adjusted Statistical Data Summary for the five stockrooms. This is the raw data adjusted for appropriate reconciling reasons.
- Exhibit IV: Cycle Count Summary Data
- Exhibit V: Researchable Cycle Count Judgmental Sample – Reasons for Variances
- Exhibit VI: Researchable Cycle Count Judgmental Sample – Results by Calendar Quarter
- Exhibit VII: Human Variance Factor Analysis
- Exhibit VIII: Variance Summary
- Exhibit IX: Comparative Prior Audit Variances

Variance Factors

Based upon best practices research conducted independently and prior to the 2013 inventory audits by the Material Management Manager (Manager) and Audit, and ensuing discussions between Audit, the Manager and Metro Transit Finance management personnel, the variance factors used to evaluate inventory effectiveness and efficiency beginning in 2013 are as follows:

Table 1: Variance Factor Goals

Description	Factor
Random Sample Net Variance	+/-0.50'
Random Sample Absolute Variance	1.50
Combined Random/Judgmental Sample Net Variance	+/-0.50'
Combined Random/Judgmental Sample Absolute Variance	1.50'
Item # Variance	3.00

Variances Exceeding the Acceptable Range

During the physical audit, individual item variances (Exhibit II) were identified at each of the five locations under review. The Manager reviewed the items and the conditions under which the variances arose and provided documentation explaining many of those variances. Audit reviewed that documentation and adjusted the applicable variances as appropriate (Exhibit III).

The following table identifies those instances in which the adjusted variances exceeded the factors stated above:

Table 2: Stockrooms Exceeding Variance Goal

Stockroom	Variance Factor	Variance Factor Ceiling	February 2014 Results	Exceeds Ceiling By
Blue Line LRT Facility	Item # Variance	3.00%	7.65%	4.65%
Warehouse Carousel	Item # Variance	3.00%	4.52%	1.52%
Warehouse - Floor	Item # Variance	3.00%	6.99%	3.99%

Body Shop

Audit found no inventory variances at the Body Shop stockroom. This is the first time during the annual audits of inventories that a stockroom has achieved a perfect accounting. This is all the more impressive as Body Shop inventory is staged at numerous locations throughout the Overhaul Base to more efficiently serve Maintenance personnel. The Body Shop did very well in 2011 also, meeting all five variance standards (Exhibit IX). The Lead Stockkeeper is known to maintain tight controls and is in frequent conversation with mechanics regarding procedures, including those for recording parts taken/returned when the stockkeeper is absent.

Nicollet Garage

Audit initially found 10 variances. The Manager reviewed the preliminary sample results and provided documentation explaining seven variances. Adjusting for these items, Audit estimates a revised net shortage of -$235 and absolute variance of $821 from the $655,306 total Nicollet garage stockroom inventory.

The net result is that all variance factors were within their acceptable range. In addition, each factor has shown substantial improvement compared to the February 2011 audit. See Exhibits I, II, III and VIII and IX for additional statistical information.

Blue Line LRT Facility

Audit initially found 24 variances. The Manager reviewed the preliminary sample results and provided documentation explaining 10 variances. Adjusting for these items, Audit estimates a revised net overage of $10,971 and absolute variance of $21,595 from the $15,543,243 total Blue Line LRT Facility stockroom inventory.

The net result is that four of the five variance factors were within the acceptable range; the 14 remaining item number variances being eight over the acceptable number. The results of this audit are about the same compared to the February 2011 audit, except for the item number variance which increased from 4.59% to 7.65%. See Exhibits I, II, III, VIII and IX for additional statistical information.

Central Warehouse - Floor

Audit initially found 33 variances. The Manager reviewed the preliminary sample results and provided documentation explaining 17 variances. Adjusting for these items, Audit estimates a revised net overage of $442 and absolute variance of $17,730 from the $6,326,331 total Central Warehouse – Floor located inventory.

The net result is that four of the five variance factors were within the acceptable range; the 16 remaining item number variances being nine over the acceptable number. The results of this audit show substantial improvement over those of February 2011. See Exhibits I, II, III, VIII and IX for additional statistical information.

Central Warehouse - Carousel

Audit initially found 15 variances. The Manager reviewed the preliminary sample results and provided documentation explaining six variances. Adjusting for these items, Audit estimates a revised net shortage of -$2,090 and absolute variance of $2,493 from the $1,690,184 total Central Warehouse – Carousel located inventory.

The net result is that four of the five variance factors were within the acceptable range; the nine remaining item number variances being three over the acceptable number. The results of this audit show substantial improvement over that of February 2011. See Exhibits I, II, III, VIII and IX for additional statistical information.

Stockroom Cycle Counting

Inventory cycle counting goals include:

- understanding the reason for errors
- correcting the processes affecting them
- eliminating the need for an annual 100% physical inventory
- efficient use of resources

Inventory items are assigned A, B or C classifications in accordance with best business practices of The Association of Operations Management. Excluding the three highest valued items, the top 70% are classified as A items, 71% to 89% as B items, and the remaining 11% as C Items. A items are counted every 120 days, B items every 180 days and C items annually.

In prior years these classifications were calculated by multiplying item unit price by the total number issued throughout Metro Transit over the previous 12 months. However, since September 2012, Metro Transit has used a more applicable inventory grouping methodology instead of system-wide data. Those groups are:

- Bus parts and general supplies (Warehouse, Carousel, five bus garage, Brake Shop, Body Shop and Unit Overhaul stockrooms)
- Electronic/farebox supplies
- Light rail vehicles and rail system supplies (LRT Facility and Rail Support Facility stockrooms)
- Northstar supplies

Standard cycle counts were then calculated for each individual stockroom, the central warehouse and the central warehouse carousel operation and adjusted quarterly to reflect actual experience (see Exhibit IV). Prior to September 2012, the standard cycle count for the five garages, the Rail Support Facility and the LRT Facility was 40, for the Central Warehouse and Carousel combined, 80, and for the five specialty stockrooms, 25. Those standards had been adjusted only once since cycle counted began in 2009.

Taken together, the Central Warehouse Floor and Carousel storage area is the only facility in which all items stored at more than one stockroom can be found. The number of items stocked in each stockroom affects the number of items Txbase chooses for counting each day. The number of inventory items stocked in each of the stockrooms under review was as follows:

Table 3: Total Inventory Items by Stock Location

Stock Location	Total Inventory Items
Body Shop	1,621
Nicollet Garage	4,958
Blue Line LRT Facility	5,371
Central Warehouse – Floor	5,456
Central Warehouse – Carousel	8,606

Audit has monitored daily cycle count reports from each stockroom since 2009. Comparing the number of items in which variances occurred to the number of items counted yields a variance rate. Since 2009, rail and specialty stockroom cycle counts have resulted in lower variance rates than garage stockrooms. For calendar year 2013 those variance rates are 2.27%, 2.07% and 6.00%, respectively (see below and Exhibit IV for additional detail).

Table 4: Historical Variance Rates by Stockroom Type, 2010-2013

Stockroom Type	2010	2011	2012	2013	Average	% Point Change 12-'13	% Point Change 10-'13
Garage	5.52%	6.14%	6.34%	6.00%	6.00%	**-0.34%**	0.48%
Rail	3.35%	1.61%	1.21%	2.27%	2.11%	1.06%	**-1.08%**
Specialty	1.80%	3.70%	2.79%	2.07%	2.59%	**-0.72%**	0.27%
Overall	4.23%	4.54%	4.18%	3.91%	4.22%	**-0.27%**	**-0.32%**

Individual stockroom variances for 2013 ranged from 0.53% for Northstar to 7.25% for Heywood, 3.0% being the acceptable ceiling. Six stockrooms achieved this goal, the remaining eight fell between 3.11% and 7.25%.

In total, stockroom variances have improved since 2010, declining by 0.32 percentage points. Most of that improvement was made during 2013 when the overall variance rate declined by 0.27 percentage points (9.35%). Between 2010 and 2012, no significant improvement occurred, with garage and specialty stockrooms recording increases in variances and rail recording a decrease. The most significant decrease (-4.05 percentage points) has been at the Electronic/Farebox Repair stockroom (see Exhibit IV).

Between 2010 and 2012 the South, Heywood, Brake Shop and Unit Overhaul stockrooms experienced increasing variance rates. However, all four stockrooms showed significant improvement in 2013. Ruter, Rail Support and Body Shop recorded little change in variance rates between 2012 and 2013, while East Metro, Nicollet, LRT Facility and the Central Warehouse facilities incurred significant variance rate increases. During the same period, Northstar and the Electronic/Farebox Repair stockrooms, although incurring significant variance rate increases, still maintained very low actual variance numbers.

Metro Transit Material Management *Policy 06.06.07, rev. 4, July 22, 2009, Cycle Counts*, states that "the lead stockkeeper of each stockroom will research each discrepancy where the absolute variance is greater than $50 or the physical count is incorrect by ten or more items." Such variances are identified in Txbase and a standard form is prepared for review. An additional step-by-step review form was introduced in 2011 by the Manager to clarify and systemize reasons for variances. When a stockkeeper completes the research, both forms are electronically placed in a shared location for management review. This resulted in a better understanding of the reasons that errors occurred. However, the number of errors remained high in both 2010 (420 errors) and 2011 (425 errors). In 2012 improvement was seen as errors were reduced 35% to 276.

In response to a recommendation from the 2013 Inventory Audit, the Manager implemented a tracking metric for identifying the reason for variances. The resultant data and subsequent instruction was provided to Metro Transit stockkeepers in an attempt to reduce erors, especially those directly attributable to stockkeeper duties such as miscounting, unknown and incorrect loction errors. In August and again in December, the Manager provided the year-to-date results to the stockkeepers, highlighting the following results:

- As of August 15, 2013, the Manager calculated that stockkeepers would record an estimated 318 errors in 2013.
    - 41% were due to either miscounting or misplacement of the item.
    - 24% were unknown.
    - 44% occurred in the Central Warehouse, an area in which mechanics cannot enter without an escort. In the past, Material Management personnel believed that errors in cycle counting occurred when mechanics had access to a stockroom absent the stockkeeper. This new data added insight into the relationship between Material Management and Maintenance personnel.
    - 79 of the 225 errors (35%) occurred in the previous two months, a significant increase. Stockkeepers were given further instruction in the importance of cycle counting accuracy, after which errors significantly decreased.
- As of November 30, 2013, the Manager calculated that stockkeepers researched 213 errors, a 16% decrease (from 253) from November 2012. Audit also identified a significant improvement in variances between the third (58) and fourth (39) quarters of 2013. However, no improvement was made in stockkeeper attention to detail (miscounting and wrong location). Therefore, additional instruction and encouragement was given to the stockkeepers.

Considering only those variances that exceeded $50, Audit identified 284 for calendar year 2013, about the same as in 2012 which recorded 276 (see Exhibit VII). Audit reviewed a judgmental sample of 169 from those 284 variances. The following reasons for variances were identified:

Table 5: Reasons for Cycle Counting Variances, 2013 – Audit Judgmental Sample

Reason for Variance	Number	Percent
Miscounting during the cycle count	33	19.53%
Reason for variance not known	33	19.53%
Finding the item in an incorrect location	31	18.34%
Transaction not recorded when taken from or returned to stock	39	23.08%
Correction of past error	13	7.69%
Miscellaneous	20	11.83%
Total	169	100.00%

Stockkeeper miscounting (32 instances in which the item was miscounted that day and an additional 13 instances in which a previous cycle count error was corrected) was the most common reason (45 instances – 27%) for variances. Obtaining parts from the stockroom without charging them to a work order and returning parts to the stockroom without adding them back into inventory (39 instances – 23%) was the second most common reason given by stockkeepers for cycle count variances, followed by finding the item in an incorrect location (32 instances – 19%) and "reason unknown" (31 instances – 18%).

Quarterly variances for 2013 were 72, 66, 107 and 39 for the first, second, third and fourth quarters, respectively. The first two quarters were consistent with 2012. However, the third quarter saw a significant increase and the fourth quarter an even more dramatic decrease in the number of cycle counting variances exceeding $50. Both the increase and decrease occurred primarily in the Central Warehouse and the Nicollet Garage (see Exhibit VI). It appears that the additional attention that the Manager has given to providing stockkeepers cycle counting variance data and training improved fourth quarter results.

According to the Manager, the reduction in counting errors has continued into the first two months of 2014. In addition, the percent of errors accounted for in the Central Warehouse has fallen to 21% (from 37% in 2013) of all variances. However, "unknown errors" has increased from 25% to 27% and the total number of researched variances has not changed from the first two months in 2013. In an effort to encourage continuous improvement, the Manager has instructed his staff to apply the following strategies:

- When issuing a part, verify the quantity on hand to that stated in Txbase.
- When not occupied with other stockkeeping tasks, check inventory to ensure the amount on hand is correct.
- Be diligent, stockrooms reporting no errors raise questions regarding the cycle count process just as much as stockrooms reporting many errors.

CONCLUSIONS

1. Body Shop: Internal controls are adequate to ensure safeguarding of assets.

This is the first time since stock location inventory audits have been conducted that zero variances have been recorded. It occurred at a stock location that is distributed throughout Overhaul Base Maintenance work areas, a very difficult and dissimilar situation compared to most of the other stock locations.

2. Nicollet Garage: Internal controls are adequate to ensure safeguarding of assets.

All five variance indicators tracked by Audit are within prescribed ranges. In addition, every variance improved substantially since the February 2011 audit.

3. Blue Line LRT Facility, Central Warehouse Floor and Central Warehouse Carousel: Internal controls are adequate to ensure safeguarding of assets. However, adherence to established controls can be strengthened to assure accurate inventory counts are recorded.

Four of the five variance indicators tracked by Audit are within prescribed ranges for each of these three stock locations. Only the item number variance exceeded the ceiling. The Blue Line LRT Facility variance increased over that of February 2011, whereas both Warehouse locations were substantially reduced.

4. System – Wide Cycle Counting: Daily cycle counting is an internal control established to ensure accurate inventory reporting and safeguarding of assets.

Internal controls have been strengthened significantly through the use of stockroom specific counts, increased management oversight, the use of tracking metrics and periodic discussions with stockkeepers regarding variance trends. As a result, researchable errors have decreased significantly from 420 (2010) and 425 (2011) to 276 in 2012 and 284 in 2013.

Overall Conclusion. Inventory and cycle counting variances have improved for all stock locations over the past three years as the Manager has developed, and stockkeepers have implemented, strategies to strengthen inventory recording and accuracy controls. Audit has no recommendations beyond what Materials Management personnel have already implemented, but will continue to monitor the effectiveness of those controls.

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Exhibit I: Universe and Sample Stratification Data

Body Shop (February 26, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $300	1,411	69	$58,241	$2,685
$301 to $1,000	108	44	57,126	24,130
$1,001 to $3,000	36	24	56,186	38,827
Sub-Total	**1,555**	**137**	**$171,553**	**$65,642**
100% Judgmental Sample				
$3,001 and above	7	7	34,962	34,962
Total	**1,562**	**144**	**$206,515**	**$100,604**

Nicollet Garage (February 28, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $220	3,788	72	$132,125	$2,986
$201 to $750	388	60	143,352	22,881
$751 to $5,000	106	43	150,562	56,624
Sub-Total	**4,282**	**175**	**$426,039**	**$82,491**
100% Judgmental Sample				
$5,001 and above	5	5	229,267	229,267
Total	**4,287**	**180**	**$655,306**	**$311,758**

Blue Line LRT Facility (February 28, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $9,000	4,814	72	$3,109,986	$39,691
$9,001 to $30,000	200	53	3,169,162	846,216
$30,001 to $100,000	70	36	3,189,836	1,636,370
Sub-Total	**5,084**	**161**	**$9,468,984**	**$2,522,277**
100% Judgmental Sample				
$100,001 and above	22	22	6,074,259	6,074,259
Total	**5,106**	**183**	**$15,543,243**	**$8,596,536**

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Exhibit I: Universe and Sample Stratification Data, Continued

Central Warehouse - Floor (February 26, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to 1,500	3,420	71	$1,332,557	$23,531
$1,501 to $5,000	557	65	1,475,828	168,818
$5,001 to $15,000	172	51	1,394,739	416,419
$15,001 to 40,000	68	35	1,422,061	704,090
Sub-Total	**4,217**	**222**	**$5,625,185**	**$1,312,858**
100% Judgmental Sample				
$40,001 and above	7	7	701,146	701,146
Total	**4,224**	**229**	**$6,326,331**	**$2,014,004**

Central Warehouse - Carousel (February 26, 2014)

Average Extended Cost	Size of Universe	Size of Sample	Value of Universe	Value of Sample
$0 to $350	6,936	72	$528,289	$5,294
$351 to $1,200	869	67	536,499	39,821
$1,201 to 10,000	225	55	554,396	131,807
Sub-Total	**8,030**	**194**	**$1,619,184**	**$176,922**
100% Judgmental Sample				
$10,001 and above	5	5	71,000	71,000
Total	**8,035**	**199**	**$1,690,184**	**$247,922**

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Exhibit II: Preliminary Statistical Data Summary

Random Sample	Body Shop	Nicollet Garage	Blue Line LRT Facility	Central Warehouse - Floor	Central Warehouse - Carousel
Shortages	0	7	12	26	9
Overages	0	3	11	7	6
Value of Sample Shortages	0	(1,580)	(5,352)	(21,718)	(608)
Value of Sample Overages	0	154	53,595	7,462	43
Net Sample Variance Value	0	(1,436)	48,243	(14,256)	(565)
Sampled Inventory Shortage %	0.00%	-1.92%	-0.21%	-1.65%	-0.34%
Sampled Inventory Overage %	0.00%	0.19%	2.12%	0.57%	0.02%
Total Random Sample Inventory					
Value of Estimated Shortages	0	(8,613)	(56,730)	(66,775)	(5,917)
Value of Estimated Overages	0	1,013	208,864	22,876	1,273
Net Projected Variance	0	(7,600)	152,134	(43,899)	(4,644)
Net Projected Variance%	0.00%	-1.78%	1.61%	-0.78%	-0.29%
Absolute Variance	0	9,626	265,594	89,651	7,190
Absolute Variance %	0.00%	2.26%	2.81%	1.59%	0.44%
Judgmental Sample					
Shortages	0	0	0	0	0
Overages	0	0	1	0	0
Value of Sample Shortages	0	0	0	0	0
Value of Sample Overages	0	0	3,278	0	0
Random & Judgmental Combined					
Value of Estimated Shortages	0	(8,613)	(56,730)	(66,775)	(5,917)
Value of Estimated Overages	0	1,013	212,142	22,876	1,273
Net Projected Variance	0	(7,600)	155,412	(43,899)	(4,644)
Net Projected Variance %	0.00%	-1.16%	1.00%	-0.69%	-0.27%
Absolute Variance	0	9,626	268,872	89,651	7,190
Absolute Variance %	0.00%	1.47%	1.73%	1.42%	0.43%
Total Variance Items	0	10	24	33	15
Variant Item Number Ratio	0.00%	5.56%	13.12%	14.41%	7.54%
Acceptable # of Variance Items	5	6	6	7	6
Acceptable Variant Item Ratio	3.00%	3.00%	3.00%	3.00%	3.00%

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Exhibit III: Adjusted Statistical Data Summary

Random Sample	Body Shop	Nicollet Garage	Blue Line LRT Facility	Central Warehouse - Floor	Central Warehouse - Carousel
Shortages	0	1	8	9	5
Overages	0	2	5	7	4
Value of Sample Shortages	0	(199)	(68)	(2,734)	(134)
Value of Sample Overages	0	39	1,339	3,719	25
Net Sample Variance Value	0	(160)	1,271	985	(109)
Sampled Inventory Shortage %	0.00%	-0.24%	0.00%	-0.21%	-0.08%
Sampled Inventory Overage %	0.00%	0.05%	0.05%	0.28%	0.01%
Total Random Sample Inventory					
Value of Estimated Shortages	0	(528)	(5,312)	(8,644)	(2,292)
Value of Estimated Overages	0	293	13,004	9,086	201
Net Projected Variance	0	(235)	7,693	442	(2,091)
Net Projected Variance%	0.00%	-0.06%	0.08%	-0.01%	-0.13%
Absolute Variance	0	821	18,316	17,730	2,493
Absolute Variance %	0.00%	0.19%	0.19%	0.32%	0.15%
Judgmental Sample					
Shortages	0	0	0	0	0
Overages	0	0	1	0	0
Value of Sample Shortages	0	0	0	0	0
Value of Sample Overages	0	0	3,279	0	0
Random & Judgmental Combined					
Value of Estimated Shortages	0	(528)	(5,312)	(8,644)	(2,292)
Value of Estimated Overages	0	293	16,283	9,086	201
Net Projected Variance	0	(235)	10,971	442	(2,091)
Net Projected Variance %	0.00%	-0.04%	0.07%	0.01%	-0.12%
Absolute Variance	0	821	21,595	17,730	2,493
Absolute Variance %	0.00%	0.13%	0.14%	0.28%	0.15%
Total Variance Items	0	3	14	16	9
Variant Item Number Ratio	0.00%	1.67%	7.65%	6.99%	4.52%
Acceptable # of Variance Items	5	6	6	7	6
Acceptable Variant Item Ratio	3.00%	3.00%	3.00%	3.00%	3.00%

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Exhibit IV: Cycle Count Summary Data

	January 1 - December 31, 2013															
Stockroom	Cycle Count Days	Std. #	Days Std. # Count	Days No Var.	% No Var.	% Std Counted	Actual # Selected	Variances #	Variances Rate	2010 Var.	2011 Var.	2012 Var.	12-'13 % Point Change	10-'13 % Point Change	12-'13 % Change	10-'13 % Change
Ruter	257	24	207	50	19.46%	80.54%	7,303	516	7.07%	8.43%	9.26%	7.63%	-0.57%	-1.36%	-7.46%	-16.19%
East Metro	255	22	194	101	39.61%	76.08%	6,667	354	5.31%	7.12%	4.26%	4.56%	0.75%	-1.81%	16.39%	-25.43%
South	256	23	210	79	30.86%	82.03%	7,139	267	3.74%	3.86%	3.72%	5.01%	-1.27%	-0.12%	-25.33%	-3.11%
Nicollet	247	21	199	76	30.77%	80.57%	6,277	415	6.61%	5.40%	4.68%	4.28%	2.33%	1.21%	54.38%	22.43%
Heywood	257	25	185	48	18.68%	71.98%	7,306	530	7.25%	3.01%	8.01%	9.56%	-2.31%	4.24%	-24.11%	141.01%
Garage Total	**1,272**		**995**	**354**	**27.83%**	**78.22%**	**34,692**	**2,082**	**6.00%**	**5.52%**	**6.14%**	**6.34%**	**-0.34%**	**0.48%**	**-5.36%**	**8.72%**
LRT Facility	259	23	185	103	39.77%	71.43%	6,683	265	3.97%	1.73%	1.26%	1.79%	2.17%	2.24%	121.15%	129.21%
Northstar	257	12	210	205	79.77%	81.71%	3,743	20	0.53%	2.06%	1.67%	0.24%	0.29%	-1.53%	119.92%	-74.06%
Rail Support Facility	249	8	181	199	79.92%	72.69%	2,905	17	0.59%	N/A	2.78%	0.65%	-0.07%	N/A	-10.63%	N/A
Rail Total	**765**		**576**	**507**	**66.27%**	**75.29%**	**13,331**	**302**	**2.27%**	**3.35%**	**1.61%**	**1.21%**	**1.05%**	**-1.08%**	**86.68%**	**-32.38%**
Central Warehouse	256	26	83	136	53.13%	32.42%	5,306	165	3.11%	3.78%	4.00%	2.11%	1.00%	-0.67%	47.10%	-17.73%
Central Carousel	259	37	179	177	68.34%	69.11%	8,986	75	0.83%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Body Shop	247	8	195	175	70.85%	78.95%	2,614	49	1.87%	0.88%	1.70%	1.72%	0.15%	0.99%	8.84%	113.01%
Elec/Fare Repair	223	14	148	175	78.48%	66.37%	3,692	20	0.54%	4.59%	2.71%	0.21%	0.33%	-4.05%	162.01%	-88.20%
Brake Shop	229	8	164	122	53.28%	71.62%	2,407	143	5.94%	0.98%	5.25%	8.24%	-2.30%	4.96%	-27.90%	506.23%
Unit Overhaul	249	15	195	149	59.84%	78.31%	4,436	115	2.59%	3.24%	3.80%	5.22%	-2.63%	-0.65%	-50.35%	-19.99%
Specialty Total	**1,463**		**964**	**934**	**63.84%**	**65.89%**	**27,441**	**567**	**2.07%**	**1.80%**	**3.70%**	**2.79%**	**-0.72%**	**0.27%**	**-25.84%**	**14.79%**
All Stock Areas	**3,500**		**2,535**	**1,795**	**51.29%**	**72.43%**	**75,464**	**2,951**	**3.91%**	**4.23%**	**4.54%**	**4.18%**	**-0.27%**	**-0.32%**	**-6.52%**	**-7.55%**

Note: Prior to 2013, Warehouse and Carousel data were combined and reported under "Central Warehouse." Therefore, the Central Warehouse prior years percentages and percent changes include Carousel data.

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Exhibit V: Researchable Cycle Count Judgmental Sample - Reasons for Variances

				Judgmental Sample - Reason For Variance								
	# of	Variance Value		Reason Not	Not Charged	Error in	Found in Different	Found at Different		Correct Prior	No Re-	
Stockroom	Var.	Total	Av.	Known	Out/In	Count	Location	Site	Misc.	Error	search	Total
1 - Fare/Elec Repair	1	710	0	0	0	1	0	0	1	0	0	2
2 - Brake Shop	9	(1,528)	(170)	2	3	1	0	0	1	0	0	7
3 - Unit Overhaul	4	249	62	1	1	0	0	0	0	2	0	4
4 - Ruter Garage	17	1,784	105	1	3	4	1	0	0	0	0	9
5 - East Metro	29	(2,645)	(91)	2	**9**	3	3	0	1	0	0	18
6 - South Garage	10	(1,095)	(110)	2	1	2	0	1	0	1	0	7
7 - Nicollet Garage	27	756	28	2	7	1	5	0	0	2	0	17
8 - Heywood Garage	26	1,207	46	2	5	0	5	1	0	1	0	14
9 - LRT Facility	31	21,477	693	4	7	3	0	0	4	2	0	20
10a - Carousel	18	(13,838)	(769)	4	0	1	2	1	2	1	0	11
10b - Warehouse Floor	108	(55,576)	(515)	**12**	3	**15**	**14**	1	**5**	**3**	0	53
11 - Body Shop	2	(30)	0	0	0	1	1	0	2	1	0	5
12 - Northstar	1	1,292	0	0	0	1	0	0	0	0	0	1
13 - Rail Support Fac	1	(300)	0	1	0	0	0	0	0	0	0	1
	284	**(47,537)**	**(167)**	**33**	**39**	**33**	**31**	**4**	**16**	**13**	**0**	**169**

Note: Bolded numbers indicate the greatest # of variances for each category relative to the total # of variances at that stockroom.

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Exhibit VI: Researchable Cycle Count Judgmental Sample - Results by Calendar Quarter

	January - March 2013			April - June 2013			July - September 2013			Oct - Dec 2013			Total		
	# of	Variance Value		# of	Variance Value		# of	Variance Value		# of	Variance Value		# of	Variance Value	
Stockroom	Var.	Total	Av.	Var.	Total	Av.	Var.	Total	Av.	Var.	Total	Av.	Var.	Total	Av.
1 - Fare/Elec Repair	0	0	0	0	0	0	0	0	0	1	710	710	1	710	710
2 - Brake Shop	5	(1,327)	(265)	0	0	0	3	(149)	(50)	1	(52)	(52)	9	(1,528)	(170)
3 - Unit Overhaul	2	184	92	1	190	190	1	(125)	(125)	0	0	0	4	249	62
4 - Ruter Garage	6	95	16	4	(331)	(83)	5	1,983	397	2	37	19	17	1,784	105
5 - East Metro	6	(443)	(74)	12	270	23	7	(728)	(104)	4	(1,744)	(436)	29	(2,645)	(91)
6 - South Garage	3	(647)	(216)	2	64	32	3	(231)	(77)	2	(281)	(141)	10	(1,095)	(110)
7 - Nicollet Garage	4	(4)	(1)	6	(313)	(52)	15	878	59	2	195	98	27	756	28
8 - Heywood Garage	8	2,063	258	3	140	47	7	83	12	8	(1,079)	(135)	26	1,207	46
9 - LRT Facility	1	25,800	25,800	8	(2,039)	(255)	10	1,913	191	12	(4,197)	(350)	31	21,477	693
10a - Carousel	7	(5,061)	(723)	2	(310)	(155)	5	(4,994)	(999)	4	(3,473)	(868)	18	(13,838)	(769)
10b - Warehouse Floor	30	(34,143)	(1,138)	28	(15,734)	(562)	49	(5,109)	(104)	1	(590)	(590)	108	(55,576)	(515)
11 - Body Shop	0	0	0	0	0	0	1	(190)	(190)	1	160	160	2	(30)	(15)
12 - Northstar	0	0	0	0	0	0	0	0	0	1	1,292	1,292	1	1,292	1,292
13 - Rail Support Fac	0	0	0	0	0	0	1	(300)	(300)	0	0	0	1	(300)	(300)
Total	**72**	**(13,483)**	**(187)**	**66**	**(18,063)**	**(274)**	**107**	**(6,969)**	**(65)**	**39**	**(9,022)**	**(231)**	**284**	**(47,537)**	**(167)**

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Exhibit VII: Human Variance Factor Analysis

	2010	2011	2012	2013	Total	%
Unknown Reason	59	68	35	33	195	22.91%
Not charged out/Brought into Inventory	58	58	31	39	186	21.86%
Counted Incorrectly	28	34	55	33	150	17.63%
Found in Diff Location	28	30	31	31	120	14.10%
Correction of previous error	28	35	12	13	88	10.34%
Exception Report not posted by admin	7	16	2	6	31	3.64%
Miskeyed Entry & Misc	1	5	15	7	28	3.29%
Item was not researched by stockkeeper	7	1	2	0	10	1.18%
Found at Diff Garage	5	9	4	4	22	2.59%
Used wrong measurement when counting	3	4	2	0	9	1.06%
Duplicate Stock Location	5	2	0	3	10	1.18%
Canabolized Part	2	0	0	0	2	0.24%
Judgmental Sample Total	**231**	**262**	**189**	**169**	**851**	**100.00%**
Total Variances over $50	**420**	**425**	**276**	**284**	**1,405**	
Unknown Reason	25.54%	25.95%	18.52%	19.53%	**22.91%**	
Correct Previous Error	12.12%	13.36%	6.35%	7.69%	**10.34%**	
Counted Incorrectly	12.12%	12.98%	29.10%	19.53%	**17.63%**	
Not Charged Out/ Brought Into Inventory	25.11%	22.14%	16.40%	23.08%	**21.86%**	
Found in Different Location	16.45%	15.65%	18.52%	22.49%	**17.86%**	
	65.80%	**64.12%**	**70.37%**	**72.78%**	**67.69%**	
Total Directly Associated Human Error Rate	**91.34%**	**90.08%**	**88.89%**	**90.53%**	**90.25%**	

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Exhibit VIII: Variance Summary

Variance Type	Audit Goal	Body Shop	Nicollet Garage	Blue Line LRT Facility	Warehouse - Floor	Warehouse - Carousel
Variant Item Number Ratio	3.00%	**0.00%**	**1.67%**	7.65%	6.99%	4.52%
Random Sample Net Variance	+/-0.50%	**0.00%**	**-0.06%**	**0.08%**	**0.01%**	**-0.13%**
Random Sample Absolute Variance	1.50%	**0.00%**	**0.19%**	**0.19%**	**0.32%**	**0.15%**
Combined Net Variance	+/-0.50%	**0.00%**	**-0.04%**	**0.07%**	**0.01%**	**-0.12%**
Combined Absolute Variance	1.50%	**0.00%**	**0.13%**	**0.14%**	**0.28%**	**0.15%**

Note: Highlighted items indicate variances falling within the ceiling range. "Combined" variances include both random and judgmental samples.

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Exhibit IX: Comparative Prior Audit Variances

Body Shop	Audit Goal (+ or -)	Audit Results Feb. 2011	Audit Results Feb. 2014	Absolute % Point Change	% Change
Random Net Variance	0.50%	**0.14%**	**0.00%**	0.14%	N/A
Random Absolute Variance	1.50%	**0.17%**	**0.00%**	0.17%	N/A
Combined Random/Judgmental Net Variance	0.50%	**0.13%**	**0.00%**	0.13%	N/A
Combined Random/Judgmental Absolute Var.	1.50%	**0.15%**	**0.00%**	0.15%	N/A
Item # Variance	3.00%	**2.96%**	**0.00%**	2.96%	N/A
Nicollet Garage					
Random Net Variance	0.50%	0.53%	**-0.06%**	0.59%	111.32%
Random Absolute Variance	1.50%	**0.92%**	**0.19%**	0.73%	79.35%
Combined Random/Judgmental Net Variance	0.50%	**0.40%**	**-0.04%**	0.44%	110.00%
Combined Random/Judgmental Absolute Var.	1.50%	**0.70%**	**0.13%**	0.57%	81.43%
Item # Variance	3.00%	3.47%	**1.67%**	1.80%	51.87%
Blue Line LRT Facility					
Random Net Variance	0.50%	**0.10%**	**0.08%**	0.02%	20.00%
Random Absolute Variance	1.50%	**0.14%**	**0.19%**	-0.05%	-35.71%
Combined Random/Judgmental Net Variance	0.50%	**0.08%**	**0.07%**	0.01%	12.50%
Combined Random/Judgmental Absolute Var.	1.50%	**0.11%**	**0.14%**	-0.03%	-27.27%
Item # Variance	3.00%	4.59%	7.65%	-3.06%	-66.67%
Central Warehouse - Floor					
Random Net Variance	0.50%	0.62%	**0.01%**	0.61%	98.39%
Random Absolute Variance	1.50%	**0.99%**	**0.32%**	0.67%	67.68%
Combined Random/Judgmental Net Variance	0.50%	0.55%	**0.01%**	0.54%	98.18%
Combined Random/Judgmental Absolute Var.	1.50%	**0.87%**	**0.28%**	0.59%	67.82%
Item # Variance	3.00%	11.16%	6.99%	4.17%	37.37%
Central Warehouse - Carousel					
Random Net Variance	0.50%	0.62%	**-0.13%**	0.75%	120.97%
Random Absolute Variance	1.50%	**0.99%**	**0.15%**	0.84%	84.85%
Combined Random/Judgmental Net Variance	0.50%	0.55%	**-0.12%**	0.67%	121.82%
Combined Random/Judgmental Absolute Var.	1.50%	**0.87%**	**0.15%**	0.72%	82.76%
Item # Variance	3.00%	11.16%	4.52%	6.64%	59.50%

Note: in 2011 the Central Warehouse was considered one location; it changed to two in October 2012.

390 Robert Street North
St Paul, MN 55101-1805

651.602.1000
TTY 651.291.0904
public.info@metc.state.mn.us
metrocouncil.org