Review of Toronto Transit Commission Procurement Policies and Practices:

Improving Materials Management and Purchasing Policies Can Potentially Result in Significant Savings

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Background – Staffing and Budget

- Purchasing & Sales (P&S): 29 employees, $2.7 M budget
- Materials Management (MM): 184 employees, $16.8 M budget

P&S procures just over $300M per year for TTC’s day-to-day operations, excluding bulk fuel purchases.
Audit Objectives and Scope

► To assess whether TTC's procurement policies, procedures and practices are fair, transparent, and cost-effective achieving the best overall value

► In-depth review of Purchasing and Sales and extended into areas of Materials Management

► Periods of data analyzed and reviewed:
  • Purchase data and files - January 2015 to June 2016
  • Operational data - January 2016 to March 2017
**Audit Findings**

A – Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

B – Addressing Chronic Parts Shortage Issue To Improve Service Level and Reduce Future Costs

C – Current Procurement Policies and Processes Need A Full Review
A - Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

Four savings opportunities

<table>
<thead>
<tr>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Bus Warranty</td>
<td>Alternate Sourcing</td>
<td>Aftermarket Warranty</td>
<td>Core Retrieval and Utilization</td>
</tr>
<tr>
<td>Maximize claim rate</td>
<td>Seek alternate source</td>
<td>Maximize claim rate</td>
<td>Improve core recovery and tracking</td>
</tr>
<tr>
<td>Significant progress; not yet completed</td>
<td>Started but as an add-on task only</td>
<td>Sporadically on a handful of parts only</td>
<td>Core recovery needs to be expanded; tracking is inadequate</td>
</tr>
<tr>
<td>2014 Bus Maintenance Audit</td>
<td>Estimated $2.5 to 6.5 million</td>
<td>Estimated $4.0 to $6.0 million</td>
<td>Estimated $1 to $1.5 million (8 parts alone)</td>
</tr>
<tr>
<td>2014 Bus Maintenance Audit</td>
<td>Current Audit</td>
<td>Current Audit</td>
<td>1. 2014 Bus Maintenance Audit</td>
</tr>
<tr>
<td>2. 2016 Inventory Audit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Current Audit</td>
<td></td>
<td></td>
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</tbody>
</table>
A – Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

#1 Realized savings from improving new bus warranty

- **Realized** additional savings as a result of improving the new bus warranty process
  - 2016 Incremental Savings: $5.8M

- These savings are expected to recur as long as TTC continues its steady state new bus procurement strategy

- As a result of the improved warranty process, bus manufacturers provided proactive repairs to many buses; the value of this work totaled approximately $8M in 2016
A – Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

#2 Expand alternate sourcing

Unavoidable Operational needs for specialized vehicle parts

Low response rate to competitive procurement

Previous savings achieved through alternate sourcing

Est. $2.5 - $6.5M savings per year by reducing non-competitive procurement

Previous alternate sourcing effort was an add-on task

On average 20% savings for each alternate source identified

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TTC has a standard one year warranty clause for aftermarket parts; warranties for certain parts are longer than one year.

Currently TTC does not systematically pursue aftermarket parts warranty (except for a handful of parts).

By foregoing warranty claims, TTC misses an opportunity to realize significant annual cost savings (potentially $4M to $6M per year).

Why??

No one department has assumed the responsibility of claiming aftermarket parts warranty.
A – Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

#4 Core retrieval and utilization

A Core is a defective part that can be rebuilt to new standards

At TTC, it can be used for

Internal or External Rebuild Program

Buy-Exchange to waive the core charge

A core accounts for 25% to 74% of the cost of a part
A – Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

#4 Core retrieval and utilization

Existing Core Management Process at TTC for Different Vehicle Parts

- Some Cores Are Currently Used for Rebuild / Buy-Exchange
  - BAE Hybrid Parts
  - Air Dryers
- Some Cores Are Discarded
  - Luminator Parts

Retrieval: 
- Best Scenario: ✔
- Better Scenario: ✔
- Worst Scenario: ❌

Tracking: 
- Best Scenario: ✔
- Better Scenario: ❌
- Worst Scenario: ❌
A – Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

#4 Core retrieval and utilization

When there is no adequate controls on retrieval or tracking of cores, TTC risks losing cores. For instance, some of the Air Dryer cores were sitting outside exposed to harsh weather conditions for a year.
A – Improving Vehicle Parts Management Can Potentially Result In Significant Cost Savings

#4 Core retrieval and utilization

More cores may be worth retrieving and tracking

Currently 2,038 core codes set up in the system

Analysed 8 parts (12 core codes) – annual savings of $1 M to $1.5 M
B – Addressing Chronic Parts Shortage Issue Can Improve Service Level and Reduce Future Costs

Parts shortages and their direct and indirect impacts

- Part shortage
  - 10% depletion
  - 41% demand outstripped supply
  
- Lengthy materials requests turnaround time
- Vehicles out of service
- Increased spare ratio to meet service request
- Increased materials transfer requests between stockrooms / warehouses
- Emergency buys
- Vehicle rebuild program stoppage

**Part shortage**

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AU9.11
B – Addressing Chronic Parts Shortage Issue Can Improve Service Level and Reduce Future Costs

Idle vehicles waiting for parts

From July to December 2016, on average 34 vehicles or $68 million worth of assets were out of service daily due to parts shortages.

<table>
<thead>
<tr>
<th>Number of Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streetcars</td>
</tr>
<tr>
<td>Subway</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Buses</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
B – Addressing Chronic Parts Shortage Issue Can Improve Service Level and Reduce Future Costs

Practices and factors that might have contributed to parts shortages

- Delays in processing inventory requests
- Repetitive purchases of the same parts in small quantities
- Misalignment of MM’s performance indicators with TTC priorities
- Lack of system controls to prevent part requests deletions

Parts shortages
B – Addressing Chronic Parts Shortage Issue Can Improve Service Level and Reduce Future Costs

Lengthy materials requests (MRs) turnaround time

What customers care:
Quick materials requests turnaround

<table>
<thead>
<tr>
<th>Turnaround Time</th>
<th>Duncan Shop</th>
<th>Greenwood Shop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same day or next day</td>
<td>54%</td>
<td>68%</td>
</tr>
<tr>
<td>3-5 days</td>
<td>22%</td>
<td>10%</td>
</tr>
<tr>
<td>6-10 days</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Over 10 days or outstanding</td>
<td>19%</td>
<td>20%</td>
</tr>
</tbody>
</table>

What Materials Management measures and reports:
Materials Fill Rate

Fill Rate – the time between a materials request is “picklisted” to the time of the delivery

Reported fill rate: 83-90% within one day (August to November 2016 Dashboard)

Materials sometimes did not get “picklisted” until days after receiving the requests from maintenance
C – Current Procurement Policies and Processes Need a Full Review

Issues of TTC’s procurement practices

- Lack of justification and approval requirement for Sole Source purchases
- Lack of clear directions and monitoring of buyer’s discretion purchases
- Centrally procuring large volume of low dollar value purchases
- Required buyers to obtain quotes from the entire purchase group for Informal Requests
- Lack of formal Blanket Contracts procedures
- Underutilization of PCard
- Low response rate to competitive procurement
- Lack of guidance on when to involve clients in bid evaluations

Current procurement policy and process need an overhaul
C – Current Procurement Policies and Processes Need a Full Review

TTC’s purchase methods and dollar thresholds

<table>
<thead>
<tr>
<th>Dollar Value Thresholds</th>
<th>Procurement Method</th>
<th>Competitive Process (Yes or No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000 or less</td>
<td>Purchase Card (PCard)</td>
<td>No</td>
</tr>
<tr>
<td>Currently $10,000 or less (lowered to $4,000 in Jan 2016; raised back to $10,000 in November 2016)</td>
<td>Buyer’s Discretion</td>
<td>No</td>
</tr>
<tr>
<td>Greater than $10,000 and up to $100,000</td>
<td>Informal Requests</td>
<td>Yes</td>
</tr>
<tr>
<td>$100,000 or greater</td>
<td>Formal Requests</td>
<td>Yes</td>
</tr>
<tr>
<td>No Threshold</td>
<td>Sole Source Requests</td>
<td>No</td>
</tr>
<tr>
<td>Pre-approval based on thresholds</td>
<td>Single Source Requests</td>
<td>No</td>
</tr>
</tbody>
</table>
C – Current Procurement Policies and Processes

Need a Full Review

Main Issues:

- Required buyers to invite the entire purchase group to quote on Informal Requests
- Inundated with small purchases, Buyers have little time to handle the more complex and significant dollar purchases
- Centrally procuring high volume of low value purchases
- Purchase groups often contain a long list of vendors unvetted by staff, sometimes hundreds
- High staff turnover rate – over 50% from 2014 to 2016
- Chronic purchasing delays + a backlog of outstanding purchase requisitions
- Outstanding purchase requisitions peaked at 1,900 (Q4 of 2016)
C – Current Procurement Policies and Processes Need a Full Review

Centrally procuring high volume of low value purchases

**Manual Orders Break-down by Purchase Value**
January 2015 to June 2016

- <$5,000: 16%
- 5,000-10,000: 14%
- 10,000-50,000: 6%
- >50,000: 65%

10,643 POs

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C – Current Procurement Policies and Processes Need a Full Review

Low vendor response rate for competitive procurement

Informal Requests:
20 out of 50 sampled files received one compliant bid

Formal Requests:
2.7 bids received vs. 4.7 bids for each tender by MBNCanada

Impact on price competitiveness

- What did vendors say?
  - Short tender response time and/or complex specifications
  - Lack of free viewing of tender documents

File review
Vendor survey
C – Current Procurement Policies and Processes
Need a Full Review
Large % of non-competitive procurement

Contributing factor #1
Unavoidable operational needs for specialized vehicle parts

40% of purchase value procured non-competitively

Lack of a rigorous review and approval process for sole source procurement

25 of the 40 files sampled contained no justification

Sole/Single source 5,544 POs or $200M (18 months)

#2

#3

Buyer’s Discretion Policy lacks clarity, guideline and monitoring

Buyer’s Discretion 4,727 POs or $11M (18 months)

20-30% proprietary bus parts

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Issues of Blanket Contracts

Lacks a comprehensive Blanket Contract policy

- Many existing blanket contracts have extremely low dollar value or low spending
- Some purchases under Blanket Contracts are more expensive than purchasing the same product through individual POs

Needs to expand existing Blanket Contracts

- Issued individual POs to 229 vendors totalling $174 million (Jan 2015 to June 2016) – all outside of any price agreement. Each vendor supplied TTC over $50,000 in goods/services
- TTC could potentially save $0.5 to $2.5 million per year from volume discount
## A Summary of Potential Cost Savings

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>Potential Annual Savings (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanding Alternate Sourcing for Parts</td>
<td>Low: $2.5</td>
</tr>
<tr>
<td></td>
<td>High: $6.5</td>
</tr>
<tr>
<td>Pursuing Aftermarket Parts Warranty</td>
<td>Low: $4.0</td>
</tr>
<tr>
<td></td>
<td>High: $6.0</td>
</tr>
<tr>
<td>Expanding Blanket Contracts</td>
<td>Low: $0.5</td>
</tr>
<tr>
<td></td>
<td>High: $2.5</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>Low: $7.0</td>
</tr>
<tr>
<td></td>
<td>High: $15.0</td>
</tr>
</tbody>
</table>

**Plus**

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>Potential Annual Savings (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving Retrieval and Tracking of Cores</td>
<td>$1 to $1.5 M based on an assessment of 8 types of cores; total savings from over 2,000 existing core codes could potentially be in the millions</td>
</tr>
</tbody>
</table>
Thank you