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Memorandum

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July 19, 2017

To: Myles Currie, Director, Traffic Management Centre

Cc: Peter Wallace, City Manager
John Livey, Deputy City Manager
Barbara Gray, General Manager, Transportation Services Division

From: Stuart Campbell, Director Internal Audit

Re: **Review of Installation & Maintenance of Traffic Signs Contract (Guild)**

Attached is the final report dated June 1, 2017 pertaining to our Traffic Signs Contract review. The report outlines our conclusions and recommendations and includes, as an appendix, your responses to address each recommendation.

Please extend our thanks to your staff for their assistance and cooperation throughout the review.

If you have any questions, please contact Gifford Chu at 397-0301.

Stuart Campbell
Director, Internal Audit

Enclosures



**Internal Audit Report:
Review of Installation & Maintenance
of Traffic Signs Contract**

Transportation Services Division

June 1, 2017

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Background

The Signs & Markings Unit within the Transportation Services Division is responsible for the manufacturing, maintenance and installation of traffic signs as well as the installation and modifications of pavement markings.

A contract was awarded to Guild Electric for the installation and maintenance of traffic signs on arterial roads and expressways within the City, for a period from January 6, 2014 to December 31, 2016. The estimated value of the contract is approximately \$3.2 million per year.

To ensure that the contract is being properly managed, Transportation Services requested a review of the traffic signs contract be included in the 2017 Internal Audit Work Plan.

Objectives

The objectives of this review were to assess whether:

- (a) Amounts invoiced in 2015 and 2016 with respect to work performed are accurate and in accordance with contract terms and conditions.
- (b) Adequate controls are in place to mitigate risks of duplicate billing and overcharges.
- (c) Contract work is effectively validated and inspected prior to payment authorization.
- (d) Opportunities for process efficiencies exist.

Methodology

Our audit included:

- Interviews with Transportation Services staff to understand the scope and nature of the contract and related processes (e.g. work order validation, invoice review, inspections, etc.).
- A detailed walkthrough of the work order system (Toronto Maintenance Management System, later referred to as "TMMS").
- Analysis of electronic data residing in TMMS (e.g. work orders, invoice billings, etc.)
- Sample testing of invoices for contract compliance and accuracy.
- Review of inspection policies and procedures relating to the Guild contract.
- Examination of relevant supporting documentation, as required.

Findings and Recommendations

There is the potential for overbilling to occur that may not be detected through supervisory review of Guild Electric invoices and work orders alone. In addition, opportunities for improvement exist through the development of guidelines with respect to invoice review and onsite inspections.

Potential changes to future traffic sign contracts may also allow the City to adjust vendor labour to meet changing demands and reduce costs.

Details are outlined below.

1. Potential For Overbilling

The billing summary on each invoice is categorized by a work order number with details of the labour crew used, hours worked and incurred costs. As hours incurred per labourer are not summarized by day, it is difficult for supervisors to determine whether a labour resource has charged more than the 8.5 hours of regular time allowed under the contract per day. In addition, breaks and travel time are included in the hours booked to each work order, making it difficult to determine how much time was actually spent completing a job and whether the hours charged were reasonable.

Our review of Guild billing data from 2015 and 2016 (comprised of 30,637 work orders) identified:

- 777 instances where regular time billed in one day by one labourer exceeded the 8.5 hours allowed by the contract (ranging from a low of 8.55 to a high of 17.25 hours)
 - 46 of these instances had 12.6 to 17.25 hours charged per day
 - 5 employees had entries that made up 54% (421/777) of all instances of excess hours.

- 22 instances of overtime where more than 12 hours were charged in one day (comprised of 716 work orders).

A stratification of the 777 instances of excess hours is as follows:

Hourly Range	# of instances	%
8.55 - 10.5	660	85%
10.6 - 12.5	71	9%
12.6 - 14.5	29	4%
14.6 - 16.5	9	1%
16.6 - 17.25	8	1%
Total	777	100%

While there may be information in TMMS that could assist supervisors in the review of invoices, none of the supervisors were trained on or aware of TMMS reporting

functions. In addition, ad hoc or custom reports are not generally requested from the Information & Technology Division to aid in the review of billings. Management should ensure that hours billed by Guild are valid and in compliance with the terms of the contract to avoid unnecessary cost to the City.

Recommendation #1:

To ensure the accuracy of amounts charged, the Director, Traffic Management Centre should:

- a) **Investigate potential overbillings in 2015 and 2016 identified above, focusing on instances where more than 12.5 hours were charged in a day.**
- b) **Establish regular reporting and analysis of Guild Electric labour hours charged by date, labourer, district and work order (at minimum, quarterly), to identify:**
 - **More than 8.5 hours charged as regular time by a labourer in one day.**
 - **More than 12 hours of overtime charged by a labourer in one day.**
 - **Labourers who routinely book excess hours.**
 - **Anomalies or trends in billing data.**
- c) **Recover excess billings from Guild Electric, as required.**
- d) **Determine the feasibility of tracking travel time, break times and time spent completing a job recorded separately in TMMS to facilitate work order review.**
- e) **Identify whether any standard or customized reports can be generated in TMMS that may assist supervisors in the verification of billings on a weekly basis.**

2. Matching Contractor Resources to Work Demands

As per the terms of the contract, Guild Electric is required to provide four crews of two labourers each at all times. Discussions with supervisors indicated that workload is seasonal and that a full crew complement is not necessary throughout the year.

Adjusting labour crews to meet work demands would allow management to better control the costs incurred under the contract.

Recommendation #2:

To ensure the effective utilization of contracted resources, the Director, Traffic Management Centre assesses the feasibility of incorporating flexible crew complements in future sign maintenance/installation contracts.

3. Need for Invoice Review and Site Inspection Guidelines

Detailed guidelines for invoice review and site inspections have not been developed by the unit. Invoice review practices, including the identification of billing anomalies are learned on the job by supervisors and develop with experience. While GPS data is available through an online system, review of such information is at each supervisor's discretion.

There are also no criteria in place to determine when a site inspection should be performed for planned, emergency or observed work. Each supervisor uses their professional judgment to determine when an inspection is required, resulting in inconsistent practices across districts. In addition, there is no requirement to document site inspection activity in TMMS.

Three of the four district supervisors will be retiring over the next several years. As such, the development of invoice review and inspection guidelines is critical to ensure retention of knowledge within the unit.

Recommendation #3:

To ensure that invoice review and onsite inspections are conducted in an effective and consistent manner, the Director, Traffic Management Centre should:

- a) Develop criteria to determine when onsite inspections should be conducted for planned, emergency and observed work, taking into consideration:**
 - **Dollar value of work performed**
 - **Adequacy of photographs provided**
 - **Size/complexity of job**
 - **Inspection targets based on job type (e.g. 5% sample per week).**

Weekly sample sizes should be periodically re-assessed based on results of inspections.

- b) Ensure that results of all site inspections performed are documented in TMMS.**
- c) Establish reasonable parameters for time charged (standard hours) to specific job types, common anomalies and when GPS data should be consulted.**

4. Non-Compliant Or Missing Photographs

The contract requires that wide-angle before and after photos (with time stamps) be attached to each work order.

Of the 10 randomly sampled invoices we reviewed from 2015 and 2016 (consisting of 390 work orders), we identified:

- 8% (32/390) of work orders had pictures taken too closely, upwards and not at a wide angle to allow verification of the location where the work was performed (e.g. no landmarks in photo).
- 4% (14/390) of work orders were missing before and/or after photos.
- The majority of the photos did not have visible time stamp.
- No supervisory comments were included to address these discrepancies.

Photos are necessary to allow supervisors to verify that work was properly performed at the time and location identified, especially since many work orders do not have a site inspection performed. As per the terms of the contract, missing or inadequate photos are grounds for the City's refusal to pay for the work order in question.

Recommendation #4:

To enable the verification of work performed, the Director, Traffic Management Centre ensures that Guild Electric complies with the photographic evidence requirements as specified in the contract.

Where discrepancies are identified, follow up should be conducted with Guild Electric and the results documented in TMMS.

Approved by:

Stuart Campbell
Director, Internal Audit

June 1, 2017

Gifford Chu
Manager, Internal Audit

June 1, 2017

APPENDIX A: Management Action Plan

Review of Installation & Maintenance of Traffic Signs Contract

Recommendation	Management Response and Action Plan	Responsibility	Timeline for Implementation
<p>Recommendation #1:</p> <p>To ensure the accuracy of amounts charged, the Director, Traffic Management Centre should:</p>			
<p>(a) Investigate potential overbillings in 2015 and 2016 identified above, focusing on instances where more than 12.5 hours were charged in a day.</p>	<p>Agreed - Transportation Services will undertake a detailed review of 2015 and 2016 works orders within the Toronto Maintenance Management System where more than 12.5 hours of time was charged in one day.</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q3 2017</p>
<p>b) Establish regular reporting and analysis of Guild Electric labour hours charged by date, labourer, district and work order (at minimum, quarterly), to identify:</p> <ul style="list-style-type: none"> • More than 8.5 hours charged as regular time by a labourer in one day. • More than 12 hours of overtime charged by a labourer in one day. 	<p>Agreed – Transportation Services working with I&T Services will develop standard TMMS reports that can be utilized by management staff within the Signs And Pavement Marking unit to assist in analyzing hours charged, including both regular and overtime hours per invoice. A flowchart of the new invoice review process has been attached which includes utilizing TMMS reports to assist with invoice review and approval.</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q3 2017</p>

Recommendation	Management Response and Action Plan	Responsibility	Timeline for Implementation
<ul style="list-style-type: none"> • Labourers who routinely book excess hours. • Anomalies or trends in billing data. 			
<p>c) Recover excess billings from Guild Electric, as required.</p>	<p>Agreed – Transportation Services will work with Finance to recover any monies deemed to be owed following the detailed review of charges.</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q4 2017</p>
<p>d) Determine the feasibility of tracking travel time, break times and time spent completing a job recorded separately in TMMS to facilitate work order review.</p>	<p>Agreed – Transportation Services will review the existing contract to determine current requirements regarding the reporting of time and will review TMMS to determine its capabilities in tracking separately. Pending the results of the review, future contracts may include specific requirements for more detailed time tracking.</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q3 2017</p>
<p>e) Identify whether any standard or customized reports can be generated in TMMS that may assist supervisors in the verification of billings on a weekly basis.</p>	<p>Agreed – see 1b)</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q3 2017</p>
<p>Recommendation #2:</p> <p>To ensure the effective utilization of contracted resources, the Director, Traffic Management Centre assesses the feasibility of incorporating flexible crew complements in future sign</p>	<p>Agreed – Transportation Service will review historical trends in work load and crew usage to determine if there are seasonal variation that can be included in future contracts.</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q1 2018</p>

Recommendation	Management Response and Action Plan	Responsibility	Timeline for Implementation
maintenance/installation contracts.			
Recommendation #3: To ensure that invoice review and onsite inspections are conducted in an effective and consistent manner, the Director, Traffic Management Centre should:			
<p>a) Develop criteria to determine when onsite inspections should be conducted for planned, emergency and observed work, taking into consideration:</p> <ul style="list-style-type: none"> • Dollar value of work performed • Adequacy of photographs provided • Size/complexity of job • Inspection targets based on job type (e.g. 5% sample per week). <p>Weekly sample sizes should be periodically re-assessed based on results of inspections.</p>	<p>Agreed – Transportation Services will be addressing this issue in two stages.</p> <p>Initially, a plan (criteria) will be developed to determine frequency and quality of onsite inspections required to be performed based on value of work as well as the size and complexity of the project, such as by-law implementation. The Division has included in their 2018 Operating Budget submission a Business Case for 2 Signs and Pavement Marking staff to be dedicated to Contract Management and Inspection.</p> <p>In addition to the above, Transportation Services will be updating their Inspection Manual (2001) to account for new technologies, modernization and enhance inspection techniques. The update of the manual will include a jurisdictional scan to determine best practices. An RFP for a consulting assignment will be issued for the updating of the Manual</p> <p>Agreed, following a 6 month period, Transportation Services will review the sample size percentage to determine if it is adequate.</p>	<p>Manager, Traffic Signs and Pavement Marking</p> <p>Manager, ITS Capital Delivery</p> <p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q3 2017</p> <p>Q3 2018</p> <p>Q2 2018</p>

Recommendation	Management Response and Action Plan	Responsibility	Timeline for Implementation
<p>b) Ensure that results of all site inspections performed are documented in TMMS.</p>	<p>Agreed – Transportation Services will review TMMS monthly to ensure that inspection is being performed per the criteria established under 3a)</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q3 2017</p>
<p>c) Establish reasonable parameters for time charged (standard hours) to specific job types, common anomalies and when GPS data should be consulted.</p>	<p>Agreed – Transportation will develop typical time charges by type of work being performed. There may be different times depending in where the work is performed ie. Downtown vs suburbs.</p>	<p>Manager, Traffic Signs and Pavement Marking</p>	<p>Q4 2017</p>
<p>Recommendation #4: To enable the verification of work performed, the Director, Traffic Management Centre ensures that Guild Electric complies with the photographic evidence requirements as specified in the contract. Where discrepancies are identified, follow up should be conducted with Guild Electric and the results documented in TMMS.</p>	<p>Agreed – Transportation Services have already spoken with Guild Electric to remind them of their contract responsibilities associated with photographic evidence. In addition, City staff have been trained on the reviewing and approving invoices, included the photo requirements. In the event photos are missing or do not meet our requirements, the work order will not be paid and notes will be placed in the comments section of TMMS.</p>	<p>Director, Traffic Management Centre</p>	<p>Q3 2017</p>