



Report to: General Committee

Date Report Authored: January 16, 2017

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**SUBJECT:** 136-S-16 Purchase of Automated Material Handling Equipment for Markham Village and South East Markham Libraries  
**PREPARED BY:** June Fry, Client Advisor ITS, Ext. 2539  
Rosemarie Patano, Senior Construction Buyer, Ext. 2990

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**RECOMMENDATION:**

- 1) That the Report entitled “136-S-16 Purchase of Automated Material Handling Equipment for Markham Village and South East Markham Libraries” be received;
- 2) And That staff be authorized to award a contract to Bibliotheca ITG Inc. for one (1) FX 11-bin book sorter with patron and staff induction, four (4) V to R Upgrade (Drop in) Cabinet, three (3) 420 Selfcheck Desktop, one (1) 420 Selfcheck Freestanding , three (3) 895 Staff Workstations for **Markham Village Branch** (Lifecycle Project) in the amount of \$304,003.95 (including freight, installation, and HST);
- 3) And That staff be authorized to award a contract for Bibliotheca ITG Inc. for **South East Markham Branch** for one (1) FX 11-bin book sorter with patron and staff induction, four (4) 8421 self check kiosk, five (5) 895 Staff Workstation, three (3) 9101 Detection System and one (1) 9102 Detection System in the amount of \$354,973.93 (including freight, installation, and HST);
- 4) And That the tendering process be waived in accordance with Purchasing By-Law 2004-341, Part II, Section 7, Non Competitive Procurement, “Where there is only one source of supply for the goods to be purchased”;
- 5) And That the award for purchasing of equipment for the **Markham Village Branch** in the amount of \$304,003.95 be funded from the Library 3M Hardware Project (Account #049-6150-15618-005);
- 6) And That the award for purchasing of equipment for **South East Markham Branch** in the amount of \$354,973.93 be funded from the South East Library IT Project (Account #070-5350-13891-005);
- 7) And That the net operating impact for maintenance cost of \$10,411.07 (\$42,231.07 requirement - \$32,820.00 existing budget) be charged to the ITS Computer Hardware Acct#400-404-5360 following the expiry of the one year warranty period (sometime in mid 2018), which will be addressed during the 2018 operating budget process;
- 8) And That Staff be authorized and directed to do all things necessary to give effect to this resolution.

**PURPOSE:**

To award the contract for the purchase Automated Material Handling Equipment for Markham Village and South East Markham Libraries.

**BACKGROUND:**

In October 2015, Bibliotheca ITG Inc. acquired in full the 3M Library Systems business (including 3M Canada Company), with the intention to create a single library-focused business dedicated to the delivery and support of security gate, sorter, self-check and staff RFID technologies that are used by the library.

Since 2001, library staff has sourced library equipment from 3M Canada Company on a yearly basis. In 2001 Library staff released a request for proposal (RFP) to five (5) potential proponents for the purchase and installation of material control systems and digital check-out/check-in equipment for the Unionville and Thornhill Community Libraries. Criteria included in the RFP were compatibility with current software and hardware; compatibility with tattle-tape security strips; efficiency with respect to inventory control and flexibility with respect to future technologies. Upon closing, three (3) proponents submitted a bid. Two others were unable to meet the criteria identified in the bid document. The Markham Public Library Board approved the contract and awarded to 3M Canada Company.

In 2009, the City issued a request for quotation on behalf of the Markham Library for the provision of two (2) 7420 RFID/Barcode enabled self check units from 3M Canada Company for the Thornhill Community Library. The bid was released to the market and closed with only one (1) submission from 3M Canada Company. Of the proponents that picked up the bid document but did not submit a bid, it was advised either they could not supply the commodity or integrate with the current system. One supplier advised that their library business was sold to 3M Canada Company and they were unable to comply with the City's requirements.

Based on the feedback received and further research undertaken, it was determined that 3M Canada Company was the only supplier that could supply compatible equipment that integrates seamlessly with the existing 3M hardware and software.

Some of the benefits of continuing to use 3M Canada Company equipment for self-service / RFID requirements for the library include;

- Full compatibility with existing hardware and software, including the Library's Integrated Library System.
- Consistency in provision of service and familiarity with use of the same equipment at all locations for both customers and staff.
- Switching to a different vendor is cost prohibitive as existing RFID tags, and equipment would all have to be replaced.
- 3M equipment has proven to be reliable and user-friendly. In the occasional event of breakdown, service response both with respect to response time and problem resolution has been excellent to date

Note: At this moment there are no other providers that can supply equipment which is compatible with the tags and other equipment from 3M Canada Company.

**OPTIONS/ DISCUSSION:**

The South East Markham Library provides the City with the opportunity to apply the same customer service standards that are already in place at Cornell, Thornhill Community Centre, Angus Glen, Markham Village, Milliken Mills and Unionville libraries. Library customers have readily embraced self-service technology in all MPL branches. Automated self check-in technology permits customers to return their own Library materials and receive a receipt confirmation of their returns.

This improves customer service through reduced wait times, as people no longer have to wait for staff to manually check in their materials. Circulation of materials in Markham has remained high relative to comparator municipalities over the past number of years. In 2015, MPL circulation has increased by 4.8% over the previous year, from 4,370,057 to 4,581,729.

***Sorters***

Markham Public Library was one of the first libraries to begin using the bin sorters. As with most technologies, the size of the device has been getting smaller with each new technology change. The original sorter was a 3-bin at Angus Glenn Library and in 2013 it was replaced with a 7-bin sorter. The library conducted a test to determine the optimal number of bins based on its categorization of their collection. A higher number of bins enhances the efficiency of the equipment, facilitating improved sortation of returned items and enhancing customer service through more rapid return of Library materials to the shelves.

When library items are returned through the sorter, the sorter places the items into predetermined bins (based on shelving location within the library). Staff empty the contents of the bins onto carts and put the items on the carts in order, ready for shelving (based on the call number affixed to each item). A sorter with more bins can complete a more granular sort which speeds up the second step of sorting the items on the carts, and thereby reducing the turn around time for reshelving ensuring that items get into the hands of customers faster.

| <b>Current Sorters</b>         |                                 |                                 |                                 |                |
|--------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------|
|                                | <b>Angus Glen</b>               | <b>Thornhill CC</b>             | <b>Markham Village *</b>        | <b>Cornell</b> |
| # of Bins                      | 7<br>(Due to space limitations) | 9<br>(Due to space limitations) | 7<br>(Due to space limitations) | 11             |
| Average Sort Time              | 8.6 seconds                     | 7.9 seconds                     | 8.6 seconds                     | 5.7 seconds    |
| Hours Spent Sorting to Carts** | 1048.6/year                     | 956/year                        | 1048.6/year                     | 696.9/year     |

\*Sorter was due for lifecycle replacement in 2015 but was extended. ITS has since conducted a condition assessment on the device and has deemed it ready for replacement.

\*\*Using 2014 average items processed by sorter of 437,443 items

Based on the current configuration of sorters at the four Libraries identified above, the total number of hours required by staff to sort items onto carts is 3,750 hours per year.

It takes 351.7 hours longer per year to sort on to carts with a 7 bin sorter than an 11 bin sorter; however the cost of a 7 bin sorter is \$189,268 as compared to \$227,000 for an 11 bin sorter (a difference of only \$37,732 ).

With time saved sorting items coming off the sorter, Pages can then have time to do many other vital parts of their jobs including:

- Shelving (putting the items back on shelves or restocking items that customers have used in branch)
- Shelf reading (ensuring all items in the library are shelved accurately)
- Emptying auto flip items, sorting them and re-shelving them (these are items that come from other locations that need to be sorted and put on the shelves).
- Tidying up the branch (toys, games, tables, chairs, browseable collections, etc.)
- Pull holds lists (retrieve holds from the shelves to be processed)
- Packing up returns going to other branches (courier bins)
- Sorting – Pages still have to do some sorting of the items coming off the sorter as they have to get them ready for shelving by call number.

| <b>Proposed Sorters</b>           |                                 |                                 |                        |                |                   |
|-----------------------------------|---------------------------------|---------------------------------|------------------------|----------------|-------------------|
|                                   | <b>Angus Glen</b>               | <b>Thornhill CC</b>             | <b>Markham Village</b> | <b>Cornell</b> | <b>South East</b> |
| # of Bins                         | 7<br>(Due to space limitations) | 9<br>(Due to space limitations) | 11                     | 11             | 11                |
| Average Sort Time                 | 8.6<br>seconds                  | 7.9<br>seconds                  | 5.7 seconds            | 5.7<br>seconds | 5.7<br>seconds    |
| Hours Spent<br>Sorting to Carts** | 1048.6/year                     | 956/year                        | 696.9/year             | 696.9/year     | 696.9/year        |

As stated above, the total hours spent sorting currently at the 4 branches is 3,750.1 hours. By changing Markham Village's sorter to an 11 bin and purchasing an 11 bin sorter at South East, the total proposed time spent sorting at the 5 branches will be 4,095.30, which will only be an increase of 345.2 hours per year.

Due to the size of the equipment getting smaller, an 11 bin sorter is able to fit in the location of the current 7 bin sorter. Based on the above rationale for increase number of bins, library is recommending replacing the 7-bin with an 11-bin sorter.

Based on the demographics of South East Markham Library, it is expected to have a similar circulation number as the Milliken Mills Library. The recommended equipment of 11 bin sorter (1), self-check units (4) and staff workstations (5) have been determined based on this assumption. While Milliken Mills does not have a sorter due to the lack of space, South East was constructed to fit an 11 bin sorter. The detection systems (4) are to protect the collection at each of the exits.

***Self-check and staff workstations***

The Markham Village Branch 3M equipment has been discontinued, and is due for lifecycle replacement. Replacement parts are now difficult to source, and in the event of a major breakdown the sorter would be irreparable, seriously compromising the branch's material handling capabilities. The self check and staff workstations are being replaced with equivalent equipment. The replacement system is designed and manufactured by 3M and is the company's primary system. Replacement parts are normally available within 24 hours.

Based on the analysis of the self check devices at Markham Village Branch (Attachment B), the library has concluded that 4 self check devices provides the optimum coverage for the patrons of this branch. As Southeast is not yet open, the library anticipates that the circulation volume will be similar to the surrounding branches; Markham Village and Milliken Mills. As Markham Village and Milliken Mills both have the highest circulations (only Angus Glen has higher) the library is recommending that 4 self check units will provide the optimum coverage.

| <b>Total Circulation</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> | <b>Average</b> |
|--------------------------|-------------|-------------|-------------|-------------|--------------|----------------|
| System Wide Total        | 4,359,353   | 4,644,678   | 4,370,057   | 4,581,729   | 17,955,817   | 4,488,954      |
| Angus Glen               | 1,124,224   | 1,053,263   | 1,042,085   | 1,118,539   | 4,338,111    | 1,084,528      |
| Cornell                  | 20,932*     | 566,772     | 503,580     | 506,666     | 1,597,950    | 525,673        |
| Markham Village          | 948,456     | 774,552     | 691,969     | 746,421     | 3,161,398    | 790,349        |
| Milliken Mills           | 834,322     | 800,104     | 751,244     | 772,002     | 3,157,672    | 789,418        |
| Thornhill Community      | 655,614     | 674,280     | 634,726     | 653,944     | 2,618,564    | 654,641        |
| Thornhill Village        | 74,758      | 74,026      | 75,394      | 82,985      | 307,163      | 76,791         |
| Unionville               | 701,047     | 701,681     | 671,059     | 701,172     | 2,774,959    | 693,740        |

\*Cornell Library did not open until mid December 2012. Averages are taken just from 2013-2015.

**FINANCIAL CONSIDERATIONS AND TEMPLATE:**

The award to Bibliotheca ITG Inc. for one (1) FX 11-bin book sorter with patron and staff induction, four (4) V to R Upgrade (Drop in) Cabinet, three (3) 420 Selfcheck Desktop, one (1) 420 Selfcheck Freestanding , three (3) 895 Staff Workstations for **Markham Village Branch** in the amount of \$316,754 (including freight, installation, and HST) will be funded from the Library 3M Hardware Project (Account #049-6150-15618-005). Staff have negotiated a \$12,750.05 (\$316,754.00 - \$304,003.95) (or 4.03%) cost reduction for the Markham Village Branch requirements.

| <b>Item</b>  | <b>Amount</b>    |
|--|------------------|
| Library 3M Hardware Project<br>(Account #049-6150-15618-005) | \$ 360,010.00    |
| Budget available for this item:                              | \$ 305,000.00    |
| Award ( inclusive of HST):                                   | \$ 304,003.95    |
| <b>Budget remaining:</b>                                     | <b>\$ 996.05</b> |

Remaining budget can be returned to original funding source.

The award to Bibliotheca ITG Inc. for **South East Markham Branch** for one (1) FX 11-bin book sorter with patron and staff induction, four (4) 8421 self check kiosk, five (5) 895 Staff Workstation, three (3) 9101 Detection System and one (1) 9102 Detection System in the amount of \$403,774.52 (including freight, installation, and HST) will be funded from the South East Library IT Project (Account #070-5350-13891-005). Staff have negotiated a \$48,800.59 (\$403,774.52 - \$354,973.93) (or 12.09%) cost reduction for the Southeast Markham Branch requirements.

| Item   | Amount               |
|--|----------------------|
| South East Library IT Project<br>(Account #070-5350-13891-005) | \$ 806,000.00        |
| Budget available:  | \$ 768,423.25        |
| Award ( inclusive of HST):                                     | \$ 354,973.93        |
| <b>Budget remaining:</b>                                       | <b>\$ 413,449.32</b> |

The remaining budget of \$413,449.32 will be used for purchasing the remaining IT related equipment for South East Library, as budgeted for in this account, such as computers, printers, Point of Sale stations, public access computers, etc,

There will also be a net annual operating budget impact of \$10,411.07 (\$42,231.07 operating cost for both, less \$31,820.00 current budget for Markham Village) for Markham Village Branch and Southeast Markham Branch which will be charged to Computer Hardware Acct#400-404-5360 upon the expiry of the one year warranty period (sometime in mid 2018), and will be addressed during the 2018 operating budget process.

#### **HUMAN RESOURCES CONSIDERATIONS**

Not Applicable

#### **ALIGNMENT WITH STRATEGIC PRIORITIES:**

This project facilitates Growth Management by enabling the Library to effectively deal with high public demand for services while containing operating costs. As described above, customer self-service technologies permit Library customers to both borrow and return materials directly themselves, requiring much less staff intervention.

Some additional benefits of the newer equipment include processing speed and the provision of new features such as reviewing accounts, renewing collections and payment of fines. These features will result in an improved customer service experience and associated feedback. The project promotes Municipal Services through ensuring the same level of service across the City.

#### **BUSINESS UNITS CONSULTED AND AFFECTED:**

Markham Public Library  
Information Technology Services  
Client Delivery  
Finance

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## ENVIORNMENTAL CONSIDERATIONS

Decommissioned equipment will be disposed of as per the City's Solid Waste Management Strategy. The current sorter at Markham Village will be recycled.

## RECOMMENDED BY:

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Catherine Biss  
Chief Executive Officer Markham Public Library

X



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Brenda Librecz  
Commissioner, Community & Fire Services

X



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Trinela Cane  
Corporate Services Commissioner

## ATTACHMENTS

<\\sharepoint.markham.ca\\DavWWWRoot\\ert\\General Committee\\Attachment A – Sorter Test Report.pdf>

<\\sharepoint.markham.ca\\DavWWWRoot\\ert\\General Committee\\Attachment B – Self-Check Analysis.pdf>