MARKHAM PUBLIC LIBRARY

SORTER TEST

Background

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.

Test

In order to prove the efficiency of multiple bins we conducted time studies at three branches; Angus Glen (AG), Thornhill Community (TC) and Cornell (CL). Participating branches pulled 200 Adult Non-Fiction items and timed a single Page as they worked to sort all the items onto 3 carts. The Page needed to sort the items onto the carts as outlined directly below:

The End Result: How the Items Needed to be Sorted at all Three Branches (Adult)			
	Cart #1	**Cart #2**	**Cart #3**
CL, AG & TC	Business & Finance Computers Crafts & Hobbies Food & Drink Health & Wellness Home & Garden Lifestyle & Family New Age & Paranormal	Biography Cars, Bikes & Boats Facts & Trivia Humour Languages & Learning Sports & Games Travel True Crime	Arts History How it Works Literature Philosophy & Spirituality Science & Nature Social Issues

The variable is that the items were pre-sorted differently according to how many bins available at each branch:

Starting Point: How the Items were Sorted into Available Bins (Adult)			
	Bin #1	**Bin #2**	**Bin #3**
1 Bin Branch	Arts Biography Business & Finance Cars, Bikes & Boats Computers Crafts & Hobbies Facts & Trivia Food & Drink Health & Wellness History Home & Garden How it Works Humour Languages & Learning Lifestyle & Family Literature New Age & Paranormal Philosophy & Spirituality Social Issues Science & Nature Sports & Games Travel True Crime	N/A	N/A

TC	Business & Finance Cars, Bikes & Boats Computers Crafts & Hobbies Food & Drink Health & Wellness Home & Garden Lifestyle & Family New Age & Paranormal Sports & Games Travel	Arts Biography Facts & Trivia History How it Works Humour Languages & Learning Literature Philosophy & Spirituality Science & Nature Social Issues True Crime	N/A
CL	Business & Finance Computers Crafts & Hobbies Food & Drink Health & Wellness Home & Garden Lifestyle & Family New Age & Paranormal	Biography Cars, Bikes & Boats Facts & Trivia Humour Languages & Learning Sports & Games Travel True Crime	Arts History How it Works Literature Philosophy & Spirituality Science & Nature Social Issues

A similar test was conducted with 200 Juvenile items. Please see a breakdown for how the items were pre-sorted into the bins and sorted onto the carts directly below:

The End Result: How the Items Needed to be Sorted at all Three Branches (Juvenile)			
	Cart #1	**Cart #2**	**Cart #3**
CL, AG & TC	CDs DVDs	Easy Readers Picture Books Fiction	Non-Fiction (multiple categories)

Starting Point: How the Items were Sorted into Available Bins (Juvenile)			
	Bin #1	**Bin #2**	**Bin #3**
AG	CDs DVDs Easy Readers Picture Books Fiction Non-Fiction (multiple categories)	N/A	N/A
TC	CDs DVDs Non-Fiction (multiple categories)	Easy Readers Picture Books Fiction	N/A
CL	CDs DVDs	Easy Readers Picture Books Fiction	Non-Fiction (multiple categories)

THE RESULTS

As expected CL had the fastest times, followed by TC and then AG (this is true for the Juvenile and Adult tests).

JUVENILE TEST RESULTS			
Branch	**1 Bin (AG)**	**2 Bins (TC)**	**3 Bins (CL)**
Total Time	23min 3sec	22min 5sec	18min 31sec
Average Time per Item	6.9sec	6.6sec	5.6sec

ADULT TEST RESULTS			
	1 Bin (AG)	**2 Bins (TC)**	**3 Bins (CL)**
Total Time	34min 29sec	30min 22sec	19min 43sec
Average Time per Item	10.3sec	9.1sec	5.9sec

ADULT & JUVENILE TEST RESULTS COMBINED			
Branch	**1 Bin (AG)**	**2 Bins (TC)**	**3 Bins (CL)**
Total Time	57min 32sec	52min 27sec	38min 14sec
Average Time per Item	8.6sec	7.8sec	5.7sec

For the whole Sorter Test:
- 3 bins is 27% faster than 2 bins
- 3 bins is 34% faster than 1 bin
- 2 bins is 9% faster than 1 bin

During 2014 the four branches with sorters (Angus Glen, Cornell, Markham Village and Thornhill Community) saw an average of **437,443** items processed in each of their sorters. Given the average sort times per item AG Pages spent more than a thousand hours organizing items from the sorter on to carts while CL Pages spent less than seven hundred hours doing the same work.

Total Time Spent Sorting Items on to Carts in 2014 (Average)			
Branch	**Average Sort Time per Item (Seconds)**	**Items Processed by Sorter (2014 Average)**	**Time Spent Sorting Items on to Carts (Hours)**
AG	8.6	437,443	1048.6
TC	7.9	437,443	956
CL	5.7	437,443	696.9

CONCLUSION
- Sorting the items faster means the items can also be shelved faster and out on the floor for customers to find. Shelving items quickly and efficiently contributes to our overall customer service strategy by helping make the collection available to browse and borrow in a timely manner.
- In 2015, MPL saw an increase in physical circulation of approximately 5%. To sustain customer expectations,we need to ensure that they have self service options. Each year, approximately 86% of all checkins at branches with Sorters are done by the customer themselves.
- Increased circulation results in a better return on investment for the library and helps to address the current ongoing decline in fines and fees revenue.

RECOMMENDATION

- That each branch with a sorter have the maximum number of bins that the space allocated allows. This ensures faster turnaround time for items getting back on the shelves and thereby enchancing the customer experience.