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**Temporary Book Storage using a Document Management Company**

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**ABSTRACT**

*Finding an appropriate temporary storage location for books and providing access to them is a significant challenge for libraries undergoing renovations. The current article describes the use of a document management company by an academic library to store 430,000 books for eight months and provide a retrieval-on-demand service. Aspects covered include the selection of a commercial storage provider with its own retrieval service; details of the move to and from offsite storage; the integration of the service with library processes; communications and user feedback; book usage during the storage period; overall costs; and lessons learned from the experience.*

**KEYWORDS**

*Academic libraries, access services, collection move, costs, library renovation, remote storage, usage*

**INTRODUCTION**

Two of the larger hurdles to overcome in a library renovation are finding temporary storage for physical collections and deciding on an appropriate service model for access to materials in storage. In the last stages of a major renovation of Concordia University’s Webster Library, it was necessary to move 430,000 books offsite for a period of eight months. The collection would need to remain accessible to library users during this time, as the move might overlap with both the winter and fall semesters of 2017. The books to be relocated included most of the literature, fine arts and social sciences collections – subject areas where print books are still important resources for faculty and students. In this article we describe the assessment of storage options leading to the use of a document management company with its own retrieval service, the steps involved in implementing the move and in integrating the retrieval service with library operations, and the impact on library patrons and their use of the collection during the period of offsite storage.

**LITERATURE REVIEW**

Librarians have consistently shared their experiences with collection moves of all types and sizes in the professional literature, often focusing on specific institutional projects such as library renovations. By describing the experience at Concordia University Library, we hope to add to this body of literature by highlighting aspects of collection moves that have seen very little discussion to date, such as the experience of a non-selective and temporary move offsite with a turnaround time of less than a year and the experience of working with a document storage company.

Elizabeth Chamberlain Habich’s comprehensive *Moving Library Collections: A Management Handbook* remains the definitive treatment on collection moves. In the preface to the revised second edition, published in 2010, Habich explains that temporary moves and moves to storage have been addressed in greater detail in this edition, as these types of collection moves have become more frequent (xi). Many recent articles on library moves rightfully point to Habich’s extensive appendices, which outline 200 library collection moves found in the professional literature between 1929 and 2006, as the single most complete review of the literature on this subject. Naturally, there have been additional contributions on the topic since 2006 (e.g. Badia 2015; Bird 2015; Burton and Kattau 2013; De Souza 2013; Lindsay 2017; Sewell 2013a), but despite Habich’s assertion that temporary collection moves are more prevalent, very few articles have dealt with this topic specifically.

Also published in 2010, the book *Moving Your Library: Getting the Collection from Here to There,* by Steven Carl Fortriede, contributes additional and very practical advice on the organization and implementation of collection moves for all types of libraries. Habich and Fortriede both succeed in presenting a full picture of the manifold considerations of a library collection move, but storage services – retrieval and delivery – which often are at the core of considerations in temporary move scenarios, are outside of the scope of their respective works. In presenting their survey of institutional practices at 82 ARL libraries during temporary collection moves, Atkins and Teper (2007, 61) recount that they found little written in the professional literature on how to organize a storage move and delivery options.

Over the past two decades, as many libraries are participating in institutional or consortial shared print collection storage initiatives, some best practices for the selection and service models for long-term offsite storage have emerged (e.g. Clement 2012; Hazen 2000). The context of a temporary collections move due to a renovation, however, differs from this perspective in important ways. As Atkins and Teper (2007, 60) assert, “temporary relocations [...] present some unique challenges.” Questions such as how long a storage arrangement is needed, how material should be organized in storage, if/how material in storage may be accessed, and what delivery mechanisms need to be put in place may be treated differently in the context of a temporary storage scenario (Atkins and Teper 2007). These questions are especially pertinent when items are not specifically selected for storage, but rather an entire segment of the collection must be moved offsite.

Elsewhere in the literature, technical services considerations with regard to inventory and records management of items to be moved have been emphasized by some authors. In describing a temporary off-campus storage move at University of Colorado, Boulder Libraries, Austin and Seaman (2002) provide informative detail on criteria and principles for material selection. While the collections move at UCB was for select materials only, the authors underline the fundamental importance of having completed item records for collections moving offsite. This is to facilitate two important control functions: inventory and recall. Likewise, Vargas (2005, 29) stresses that “data input and cleanup [in the ILS following items going into offsite storage] were an enormous amount of tedious but essential work.”

Very little may be found in the library literature on using commercial vendors for temporary monograph storage. Some more recent publications allude to the use of commercial vendors for library collections storage, but lack any detail on processes (e.g. Sievers-Hill 2010; Horava et al. 2017). Vargas (2005, 27) also notes the absence of third-party vendors in even the most comprehensive discussions of library material storage options. In describing the experience of working with a third-party vendor at his university, Vargas states: “[T]he third-party off-site storage program at Byrne Memorial Library resolved many longstanding space problems efficiently, in a cost-effective and novel manner, and has not impaired research services to patrons.” He suggests that “use of a third-party storage and delivery vendor may be a practical and effective alternative” to consider for many libraries. According to Vargas, “The three key questions for both the library and the vendors were: determining how the program would be paid for; determining how many items could be stored; and determining the methods of delivery” (27). He outlines the standards of the RFP and describes the functional storage of library materials in record center cartons, rather than on shelves.

Facility location and cost considerations are central to the discussion of collections storage options (Atkins and Teper 2007; Austin and Seaman 2002, 67). Atkins and Teper furthermore discuss space availability and collections care considerations. Austin and Seaman specifically focus attention on the high cost of installing shelving (2002, 68) – even in the case of temporary storage arrangements: “To move, shelve, provide ongoing retrieval of 325,000 volumes, cost, on average, eighty cents per volume annually for the five-year period” (74). Norton and Vardaman (2005, 396) used a third-party run facility and stress the importance of selecting a storage provider with skilled staff, ideally with library experience.

Another important consideration that is well documented in the literature on library materials storage is retrieval mechanisms or other access methods. Austin and Seaman (2002, 76) find that “Providing quick, reliable access to stored materials is critical” in any collections move scenario. They also discuss the imperative need for staff training and communication to users about retrieval processes (73). Errors and problems lead to “ill-will on the part of faculty at a time when it could scarcely be afforded” (74). Deutch (2001) outlines in detail the implementation of a paging system for library materials when the collection of over one million items moved into a temporary space without public access, while Vargas (2005, 29) focuses on mechanisms for both retrieving and returning materials to offsite storage and the necessary library policy changes that go along with this (e.g. no interlibrary loans for items in storage). In their survey Atkins and Teper (2007, 64) asked whether libraries provided access to stored materials and whether they placed any restrictions on access. They found that 73% of respondents set up one or more retrieval and delivery mechanisms during temporary storage (70). Allowing users to place requests through the library catalogues was only the second most common requesting method (after a separate web form or email), but the preferred pickup method at the great majority of libraries surveyed was user pickup at an existing public service point (71).

Norton and Vardaman (2005, 394) recount the experience of maintaining full services during a 2.5 year library renovation, which included providing a model for access to the collections that were moved into an offsite third-party storage facility. Although an entire floor had to be cleared, their library still used a selection process for material, rather than removing entire call number ranges. While this method is thought to keep the impact on users to a minimum, by choosing duplicate, older, and/or low-use materials, it is also significantly more time consuming and further complicates the process of returning the material back into the collection. Some authors also allude to the challenge of integrating or storing new library monograph acquisitions that arrive while material is in storage, particularly in the context of a temporary relocation when material is expected to return (Austin and Seaman 2002; Fontane 2016), but successful solutions are not discussed.

Many libraries facing temporary collection moves or placement into storage attempt to estimate how much of the material might be requested by users. Discussions of usage in long-term storage arrangements (e.g. Burton and Kattau 2013; Hill 2000; Peper 2008; Sewell 2013a, 2013b), however, are based on usage patterns for material that was specifically selected for storage, often at the item level and due to low prior usage. As such, these studies are only moderately relevant to situations where entire call number segments must be stored. In her discussion of the storage paging system at Brooklyn College Library (CUNY) during a renovation, Deutch (2001, 26-27) describes their formula based on shelving and circulation statistics. Norton and Vardaman (2005) are full of valuable lessons learned in a less than ideal move/storage experience, especially with regard to retrieval requests. Despite the fact that they had selected older materials and print journal runs, they wildly underestimated the number of requests (by a factor of 4) and eventually introduced a request limit of ten items per patron (394). Furthermore, they only accepted ILL loan requests for monographs kept onsite (395). Requests for volumes and related loans policy considerations, especially for ILL, are essential to managing the impact of temporary storage on operations.

Throughout the professional literature on collection moves and storage, librarians emphasize the need for proactive communication and well-managed involvement of all stakeholders (users, administrators, etc.) as critical to the success of any project (Burton and Kattau 2013; Demas 2013; Fontane 2016; Lucker 2012). Communication also helps to manage user expectations (Norton and Vardaman 2005, 395-396). From the perspective of both impact on operations and impact on users/usage, many stress the need to have easy-to-understand criteria for what goes into storage and to be able to communicate this to users in a consistent manner (Vargas 2005, 28; Burton and Kattau 2013; Hazen 2000). Vargas (2005, 28) states: “For political and administrative reasons, it was vital to obtain consensus from faculty and administration concerning the off-site storage program”.

**THE WEBSTER LIBRARY TRANSFORMATION**

Concordia University is a comprehensive research university with over 28,000 student FTEs, although enrollment for 2017-18 includes over 37,000 undergraduate and 9,000 graduate students, due to there being a large number of part-time students. The university has over 2,000 full-time and part-time faculty members. Concordia was created in 1974 by the merger of a larger university located in downtown Montréal with a smaller liberal arts college in a nearby suburb. The university thus has two campuses, each with its own library: the Webster Library on the main downtown campus, and the Vanier Library on the smaller campus. As most faculties and departments have been consolidated on one or the other campus, there is little overlap between the two libraries’ recent collections, although both libraries contain older works in the humanities, social sciences and sciences. The libraries’ combined print lending collection numbers slightly over 1 million volumes, of which over 700,000 are located at the downtown Webster Library. Since this library opened in its current space in 1992, enrollment at Concordia has nearly doubled.

In 2015, construction began on an ambitious project to completely renovate the downtown library in four phases over three years. The primary goals of the Webster Library Transformation were to increase the number and variety of user spaces in the library and to implement an innovative technology program, including multifunctional teaching spaces, a visualization studio, and a technology sandbox. For each of the first three phases, a half-floor or floor of the building was closed for renovation at a time while the rest of the library remained open; services to users and access to collections were maintained with as little disruption as possible.

This approach was made possible through a planning process which began several years before the start of construction. In 2012, a project assessing journal holdings resulted in significant weeding of print holdings and the relocation of the majority of print journals from the Webster Library to compact storage at the Vanier Library, freeing nearly half a floor of stacks downtown (Huhn and Harland, 2014). In 2014, the entire Collection Services department also moved from the Webster Library to the Vanier Library. These two transfers were the opening steps in a complex choreography of collection, office, and service point moves which continued throughout the project.

A major weeding initiative targeting the main circulating book collection, reference and government publications, and microforms and other media formats had also begun in 2013, and this created additional pockets of space in the downtown library to temporarily house collections and service desks during renovations (Giffin, 2016). The addition of an 8th shelf per unit of shelving to 60% of the stacks in the renovated library enabled 15% more books to be accommodated in each of the new areas of stacks. Finally, another floor in the building was allocated to the library which, following the renovation, now occupies four floors instead of three. These measures ensured that all collections could remain onsite during the first three phases of the project.

However, the final phase required half of the third floor and the entire fourth floor of the building to be cleared for construction by early 2017, with the work on these floors estimated to take nine months. While the space to be emptied on the third floor only included some small collections, which could be temporarily housed on another finished floor, the fourth floor contained over 430,000 print books, including 3,000 oversize volumes. This represented 60% of the circulating book collection at the Webster Library. The floor housed Library of Congress call number classes H through QA 76.79: social sciences, including economics, sociology and political science; business; education; law; music; fine arts; language and literature; and computer software. Although loans of print books have been steadily decreasing for some years, fine arts and literature are book-reliant disciplines, and computer software and coding manuals are heavily used. Items from this floor were borrowed over 61,000 times in 2015-16, accounting for 70% of book loans from the main collection at this library. Providing users with access to these books during the projected nine months of relocation, which would include the entire winter semester of 2017, was a critical issue. The challenge of temporarily storing these books while ensuring some form of access had loomed large over the renovation planning process from the outset, with various on- and off-campus solutions being considered by the Library Renovation Coordination Committee (LRCC), which included both library and facilities management personnel.

**ASSESSMENT OF STORAGE OPTIONS**

Three temporary storage scenarios were considered. Although no existing location was available on either campus with sufficient space and floor load capacity to store the books, the university had recently acquired a large basement space in a nearby downtown building for future use. The feasibility of using this location for the book storage was evaluated. One advantage would be access to the books by library staff to fill user requests. However, as Atkins and Teper note (2007, 73), retrofitting a space for library collections may not be cost-effective for a temporary move, and this option was rejected in the end as the basement required considerable cleanup and installation of flooring, shelving, and lighting for even short-term use.

A second option was to move the journals from compact shelving in the Vanier Library into commercial storage without retrieval and to move the books from the Webster Library into the compact shelving. This scenario was also rejected as a) the linear footage of compact shelving available was less than the space needed for the 4th floor books, so additional shelving would have to be installed at the Vanier Library; b) the cost of moving the journals to offsite storage and the books to the other campus (and both back again) was estimated to be equivalent to the cost of commercial moving, storage, and retrieval for the books, but the double move would require considerably more planning and staff time; and c) the optimal three-week timeframe for moving the books with the least disruption to access, from mid-December 2016 to early January 2017, was judged insufficient to execute two collection moves of this size, given the access limitations of compact shelving and the unpredictability of winter weather conditions in Montréal.

The third option was to use a commercial storage provider. Two types of commercial offsite storage were considered: traditional moving and storage companies, some of which had provided book storage to other Montréal libraries; and document management companies, such as the one already used by the university for offsite records storage. While using a moving company appeared cost-effective, concerns were voiced by the library members of the LRCC that local moving companies’ facilities were not environmentally suited for book storage. As well, none of these companies had ever provided delivery-on-demand service for library books during storage. Document management companies, on the other hand, had more appropriate facilities for book storage and could provide some type of retrieval service for the books. As described by Vargas (2005), using such a vendor for permanent offsite storage with retrieval resolved the library’s space problems while maintaining service to patrons, and in their case the vendor “performed professionally and efficiently, beyond the expected levels of satisfaction” (29). The primary issue with this option was cost: based on estimates obtained from two such local companies, packing and storing costs appeared to be slightly higher than typical costs from moving companies, and book delivery on demand could cost between CAD$4 and $6 per loan transaction (retrieval+return). The projected total cost would exceed the remaining project budget allocated for collection moves and storage in the final phase of renovation.

A detailed cost analysis was performed of moving, storage, and projected book request costs. The latter included multiple scenarios based on anticipated usage trends, limiting the retrieval service to specific patron groups, and six, nine and twelve-month storage periods beginning in January 2017, as well as a comparison to current interlibrary loan costs. After discussion with Concordia’s facilities management department and the university administration, the Library agreed to pay the costs of book retrieval during storage with additional funds approved by the Provost, while all moving and storage costs would be covered by the renovation project budget.

A Request for Proposal (RFP) for the packing, moving, storage, delivery on demand, and return of the 4th floor books was issued in 2016. The RFP required bidders to provide evidence their facilities met specific criteria for temperature and humidity control, salubrity, and security measures; as well, site visits to bidders’ facilities were conducted. Separate pricing was requested for the moving and storage component and for the book request service. The duration of the contract would be nine months, with both optional monthly extensions up to a total storage period of twelve months and the option to terminate storage earlier with two weeks’ notice. Bidders were asked to describe their proposed methodology for packing the books, maintaining call number order, and returning the books at the end of the storage period, as well as their process for receiving and tracking requests, locating and delivering requested volumes, and handling returns. The projected volume of book requests was divided for pricing between a base tier of 28,860 transactions (including both requests and returns), and a second tier of an additional 28,860 transactions, for the maximum twelve months of storage. These figures were based on projections taking into account the current year-on-year decline in print book borrowing; decreases in loans of close to 50% during temporary storage of collections reported by other academic libraries (Tolppanen and Slough 2004); a policy change to allow unlimited renewals during the storage period; and the exclusion of some patron groups from access to the stored books. Bidders were also asked to provide separate pricing for rush requests with same-day delivery. Twice-weekly delivery to the library was proposed, for an estimated volume of up to 900 requests per week during peak periods in the winter semester.

**IMPLEMENTATION**

The contract was awarded in the fall of 2016 to a document management service company headquartered in Montréal based on their storage warehouse meeting all environmental criteria, their robust security measures, the competitive pricing offered for moving and storage, and their existing processes for document retrieval, delivery, and return. Their price model for the request service resulted in a transaction cost of slightly less than CAD$2.45 per volume retrieved at the warehouse and delivered to the library, and the same cost per volume returned to the warehouse from the library.

This company’s existing system for file or document retrieval was based on barcodes applied to storage boxes, transit boxes, and items within boxes, all of which were tracked with their proprietary inventory software. Since the library already used barcodes on books for circulation and inventory, the proposed approach was for the library to prepare a data export from the library catalogue providing barcode, call number, volume and copy number, title, author, status, and unique item record numbers for all items to be stored. This data would be uploaded to the storage company’s inventory database. Each item’s barcode would be scanned during packing into document boxes that had pre-printed labels applied. The labels provided a unique number for each box composed of the call number section and an ascending accession number (e.g. PR-00001, PR-00002). Individual items were linked to the box code in the company’s database and could thus be located at the box level in the system and flagged when pulled and delivered. Once the boxes of books were stored in the warehouse, items could be searched and requested via the company’s web-based client interface. Requests would be batched for delivery twice a week to the library.

A patron request option had been implemented several years previously in the library’s Sierra integrated library system (Innovative Interfaces Inc.), enabling users to place holds on books via the catalogue or discovery search interface and to pick them up at either library when notified by email. Hold requests were printed several times a day for library staff to pull from the stacks. By configuring these paging lists to print out a scannable form of the barcode for each item requested, a simple workflow for requesting offsite items was developed. Staff would print the paging lists of requested library materials as usual. Then, for the items located in offsite storage, they would scan each barcode from the list into the document management company’s client ordering interface and submit them as a batch request for delivery to the library.

To prepare for implementing this workflow, some collection and catalogue cleanup was required. A complete inventory of the library’s print collections had not been conducted for some years, but it was known that not all books in the stacks had barcodes, particularly multi-volume sets. However, titles with item records in the catalogue lacking a barcode could be identified, and lists of these were prepared for staff to pull and barcode during fall 2016, before the data export for the storage company was prepared. Over 5,000 volumes were barcoded during this exercise.

In addition to preparing the existing collection for storage, decisions had to be made for the treatment of new books normally destined for the 4th floor during the period of offsite storage. Proposed solutions included sending these new books to storage after processing, with incremental exports of catalogue data; shelving them in a separate “New Books” sequence in the Webster Course Reserves room; or adding them temporarily to the Vanier Library collection. As these new books were likely to be borrowed, the preference was to keep them onsite for greater user convenience and to reduce offsite retrieval costs. However, the Course Reserves room already housed both reserve material and books on hold for patrons, with the latter expected to occupy many more shelves than usual while users were requesting books from storage. Concerns over sufficient shelf space in that room, not to mention the potential confusion for users of having course reserve books, new books, and books on hold all shelved within the same space, led to the decision to shelve the new 4th floor books temporarily in the Vanier Library. These books would have removable library location stickers on the spine, allowing for a simple transfer to the permanent location in the Webster Library without redoing the spine labels, once the storage period ended.

At the beginning of December 2016 the data export of nearly 430,000 item records was delivered to the offsite storage company. In the end, the 3,000 oversize volumes from the 4th floor were excluded from the data export. This collection had very low usage, whether loans or in-house use. The LRCC decided that the projected low volume of requests for these items during the nine months of storage did not justify the cost and logistical issues of retrieving these items, which had to be packed in special containers and could not be delivered in standard-sized boxes from storage. Catalogue records for these items were therefore suppressed from public view for the duration of offsite storage.

Scanning, packing and moving the books began in mid-December 2016, near the end of the fall exam period. The 4th floor stacks had been divided into 40 sectors by LC class and subsection: for example, H class was divided into 5 sectors. The linear footage of each LC class had been measured shelf-by-shelf in June 2016, and shelves were counted for each sector in early December. These measurements, together with the data export from the catalogue, enabled the storage company to estimate the number of boxes needed per sector and to prepare the numbered box labels. Packing proceeded sequentially in each sector, but the storage company’s teams worked in multiple sectors at once. Despite the barcoding blitz that had been done in the fall, packing staff identified over 200 items without barcodes during the first days of packing. The decision was therefore made to have any unbarcoded items simply packed in order with the barcoded volumes. Although they would not be retrievable from storage, the lack of barcodes meant that these volumes had not been borrowed for over 20 years, so the likelihood of their being requested was deemed very low.

Although three weeks had been allotted for the work, as of December 29, 2016 all books had been packed and moved out of the library, one week ahead of schedule. The storage company personnel then spent the first week of January unpacking the 19,000 boxes of books and installing them in the space reserved for Concordia in their warehouse. Meanwhile, the library catalogue was updated: since each floor of the library has a unique item location code in the library system, the code for the “Webster 4th Floor” location was simply modified to display as “Offsite Storage”.

Upon their return to work in January 2017, library staff began packing additional boxes for the storage company of books that had been returned to the library by users over the holidays. These books, which had been out on loan during the main packing exercise, were picked up by the storage company and then scanned into new storage boxes which were labelled in a special sequence as “Z” boxes, since the contents were not in shelf order. Additional Z boxes were added throughout the storage period whenever books that had not been on the shelf during the original packing process were returned to the library and sent to the storage company. Library staff also began placing requests from users for offsite storage items on January 9, and the first delivery of books to the library was made on January 13, 2017.

**IMPACT ON LIBRARY USERS**

While planning the move of the collection to offsite storage during the renovations, significant consideration was given to reducing the impact on the library’s primary users: faculty, current students, and staff. Two areas that received particular focus were library policies and communications. The Offsite Storage Working Group was convened to look at these and other aspects of the temporary storage, made up of the Collections Coordinator (who was managing all collection moves related to the renovations), the Head of Access Services, the Systems Librarians, and the Chair of the Circulation Services Committee (who was also Head of Interlibrary Loans and a subject librarian).

Although the library’s primary users would be the main groups able to request materials from storage, two exceptions were made. The library would allow graduate students and faculty from other institutions taking advantage of the Canadian University Reciprocal Borrowing Agreement (CURBA) to have access. Also, Concordia Library would continue to fill interlibrary lending requests from members of the Québec university consortium, le Bureau de coopération interuniversitaire (BCI). In all cases the demand from these groups was estimated to be manageable and would allow Concordia to honor its consortial agreements as well as show its acknowledgment for its increased dependence on other institutions, particularly neighboring university libraries, while its own collection was not as easily accessible.

As the working group reviewed loan policies, two factors which influenced initial decisions were to try to minimize costs, considering that each request for material to be retrieved from and returned to offsite storage would cost nearly CAD$5, and to keep the number of requests manageable. Subsequently it was decided, by looking at past circulation statistics of primary user groups, that all groups served would be allowed to place 5 concurrent holds, down from 10. In addition, once the books were retrieved users would have 7 days to pick up their items before they were returned to storage, where previously they had had between 3 and 5 days. In recent years the percentage of holds that went unclaimed had been a source of some concern. In 2015, for example, on average 21% of holds were not picked up during the months of January to May. In 2016 during the same period, following the extension of the hold time from 3 to 5 days for graduates and faculty, this had decreased to 16% but was still worthy of attention. As the expectation was that there would be many more holds with material being offsite, it was hoped that an increase in the hold time would keep the percentage of unclaimed items from rising again.

As was mentioned earlier, another policy change allowed patrons to renew their checked-out books an unlimited number of times, whereas in the past there had been limits on renewals depending on the user group. The expectation was that with unlimited renewals users would tend to hold onto books; this was considered advantageous since recalling a book from a user would engender no additional costs, whereas a book returned to offsite storage and requested again by another user would have additional return and retrieval costs. These changes were implemented at the end of November 2016, just before books were moved offsite.

The contract with the offsite storage company provided for two retrieval days per week, not including weekends. It was decided that most practical would be to have delivery and pick-up of material returning to storage be on Tuesdays and Fridays, which resulted in a wait time of 1 to 6 days for users. Holds made up to noon on the day prior to delivery would be available on the next delivery day, but if that time was missed then the delay could be much longer, particularly if the patron requested that an item be delivered to the Vanier Library, on the other campus – this added a day to the delivery time. So, for example, a request made Thursday morning would usually come in the next day, but a request made Thursday afternoon would take 5 days, plus an additional day if being picked up at Vanier Library.

Communications about the move of the collection to offsite storage fell within a larger publicity campaign organized around the Webster Library Transformation Project, which won two marketing/communication awards over the course of the renovations. The main communication channels for the collection move were: email announcements sent to all faculty and graduate students (these user groups were considered to be greater users of the monograph collection and therefore more affected by its removal); signage in the library (including the electronic display screen at the entrance); messages on social media platforms; and a webpage describing the move and how to access material in offsite storage, linked from a prominently placed banner on the library homepage. An effort was also made to add information at point of use, for example by providing explanations and warnings on request pages in the online catalogue and discovery interfaces.

As the move of the collection would also disrupt course reserves processing for the winter semester, warnings were placed for users in the library’s course reserves system. An additional email was sent out to professors who had taught in the previous winter semester asking them to make their requests early and warning them of delays in processing reserve requests if they waited until after the collection was moved to offsite storage.

Another important conduit for communications was via library staff. Emails were sent to librarians, library assistants, and student librarians working in public services, providing descriptions of the above changes and whom they could contact if they had questions or concerns. The webpage that informed users how to obtain material from offsite also referred users to their subject librarians, should they need further assistance accessing material on their topics outside of Concordia University’s collections.

The move of the books offsite was soon followed by patron feedback. Interestingly, early responses came from undergraduate students to whom no email warning had been sent – in retrospect it might have been preferable if they had been included as recipients of the email notice sent the preceding November. The main objections were the impossibility of browsing the collection, which was of particular concern to fine arts and humanities students; the potentially long wait time for retrieval from offsite storage; and the limit of 5 concurrent holds allowed per requester. Similar concerns were voiced in comments submitted in the LibQUAL+ survey of students administered in February 2017. All complaints were answered promptly with alternatives suggested, and in at least one case a particularly concerned patron was invited to meet with the University Librarian, a meeting that resulted in a positive article in the local student paper. User feedback was also discussed by members of the working group and resulted in changes to policies and even levels of communication. For example, it had been judged to be too much detail to explain what were good times in the day to make requests, but following complaints about wait times, this information was added to the website.

Subsequently, in early February of 2017 the number of concurrent holds was raised back to 10 for faculty and graduate students, following feedback from these groups and also because the retrieval process was working well. In March the same increase was applied to undergraduate students, as the number of requests received to date was lower than estimated and was well within what staff – and the hold shelves – could handle. In April the Faculty Association approached the University Librarian about raising once more the number of concurrent holds, and as retrieval had been working smoothly and the volume was proving manageable, the working group felt confident in increasing it to 30 for faculty. It is interesting to note that this latter policy change for faculty as well as the policy change to allow unlimited renewals have not been changed back since the return of the books from offsite storage.

**THE RETURN OF THE BOOKS**

Based on the original renovation timeline, the target for returning the books from offsite storage was late September 2017. Fortunately, construction on the 4th floor of the library was largely completed ahead of schedule, and so the book return was moved up to August, to be finished before the start of the fall semester in September. Despite unforeseen delays in the installation of shelving in July and August, pallets of boxed books started arriving at the library during the first week of August. The entire unpacking and re-shelving exercise was completed in 13 working days, two days fewer than planned. Once the book return was complete, new furniture was installed in the space occupied by the pallets of boxes during the unpacking, and the entire floor was opened to users in the second week of September, one week after the start of the fall semester.

Planning for the return had begun nearly six months earlier. Unlike preparations for collection moves within the library, this move required complex calculations to translate the quantities of boxed books back into linear feet on the new shelving layouts. Reports were obtained from the offsite storage company’s database providing the number of barcoded items per box, and the number of boxes per LC class subsection. Since it was known that some boxes contained additional non-barcoded, non-inventoried items, quantities were rounded up for boxes containing unusually low numbers of items. This data was compared to the linear foot measurements by LC class and the shelf counts by packing sector from 2016 to project the number of shelves filled to 75% capacity needed for each sector. Using Excel, the size of each LC sector was calculated and then plotted against the new stacks layouts for the 4th floor, to determine the start and mid-point for each LC sector to be unpacked and to determine the number of empty shelves to leave in each section for growth. This strategy enabled the unpacking and shelving of books to proceed in multiple sectors at once. As well, this approach made it possible for adjustments to be made after the mid-point of a section was reached, for example by increasing or decreasing the number of empty shelves and the number of inches filled per shelf. This ensured that all the books would fit and avoided large gaps of empty shelves at the end of any sector.

As the boxes at the storage company’s warehouse were moved onto pallets for the return, book requests could no longer be filled after the beginning of August. However, library staff were able to begin retrieving requested books on the 4th floor after the first week of unpacking, depending on the call numbers. Once the 4th floor was opened to users in September, the catalogue location display was flipped back from “Offsite Storage” to “Webster 4th Floor”.

The 500 “Z” boxes of books out of call number order (books returned by patrons and sent to the storage company after the initial packing) were also returned to the library during August, and library staff unpacked and sorted them onto an empty range of shelving at the end of the call number sequence. As unpacking and re-shelving of the main call number sectors were completed by the storage company teams, library staff could then re-shelve these out-of-sequence books.

Although the majority of books were unpacked and re-shelved in call number order, a number of boxes had contained a few books piled on top of the row of books in call number order, in order to fill the boxes completely. Unpacking these books first from the boxes sometimes resulted in them being re-shelved out of sequence by the storage company’s teams. Library staff therefore began shelf-reading the entire 4th floor in September 2017, an exercise which continued through the winter.

Finally, Collections staff retrieved those new books received and catalogued between December 2016 and August 2017 that had been temporarily added to the Vanier Library collection and transferred them to their permanent location on the 4th floor of the Webster Library.

**USAGE**

As with any large renovation and collections storage project, the library anticipated a certain negative impact on its users and on the use of physical collections. While a library renovation can be expected to have an adverse effect on all service areas (Fontane 2016), we were most interested to examine the circulation statistics to determine how offsite storage affected usage by library patrons.

We reviewed the overall circulation data from before, during, and after the 4th floor collection went into storage and were surprised to find that the decline in circulation transactions during the storage period in winter 2017 was much less than expected. Overall, total transactions (loans and renewals) of books from the main circulating collections at both libraries decreased by less than 2.5% compared to the previous semester when all materials were available onsite. This decrease appears to follow a general trend of declining circulation at Concordia University Library, even though we only examined transactions back to 2014, when the first collections move preceding the Webster library renovation occurred – a factor that may have contributed to the downward trend (Fontane 2016). An analysis of usage trends over a longer period post-renovation may allow for more conclusive evidence regarding which factors had the most impact: the renovation overall, the offsite storage period, or the general decline in print book usage at the library, which may be related to a steady increase in E-book purchasing.

Given the relatively modest decline in total circulation transactions, we were interested to see if the changed loans policies (i.e. unlimited renewals for all patron groups and decreased number of concurrent requests from storage) may have had an effect. Broken down into loans and renewals, it becomes clear that users took advantage of the changed policies. The overall transactions during the storage period include a larger percentage of renewals compared with previous semesters and, consequently, a decline in actual items loaned is much more noticeable when renewals are eliminated. Loans actually declined by 18% during the winter storage period compared to the preceding fall semester (Figure 1). However, renewals shifted from representing 36% of total circulation transactions in the fall semester to 46% of transactions during the winter storage period. Amongst all three main patron groups, undergraduate students, graduate students and faculty, there was a clear trend towards increased renewals and fewer new book loans compared to previous loan periods.



Figure 1. Number of loans by semester

We further examined the circulation data by patron group (Figure 2) and found that the overall decrease in loans is mostly due to one large group: the undergraduate students. Loans by undergraduates during the winter semester of offsite storage dropped by 22% compared to the fall semester. Graduate student borrowing also decreased by 10.5%. By contrast, faculty showed a relatively stable usage trend during the renovation as a whole and the offsite storage period in particular. This could mean that they were using other parts of the collection more heavily. However, we also believe that faculty researchers may not be in as much of a rush when requesting books for their work, so the option of receiving a book with a 3-4 day delay from offsite storage is less of an obstacle for them than it is for undergraduate students with more pressing deadlines. The data leads us to conclude that undergraduate and graduate students were more negatively impacted by the books being in storage. Faculty were not deterred.



Figure 2. Number of loans by patron group

Finally, we were interested to look at the loans from offsite storage by subject area to see if certain disciplines in storage generated more loans. Thanks to the detailed request log provided by the document management company, we were able to examine the data by LC call number classes. This complemented and confirmed some of our own data gathered during the storage period. Of all the LC call number ranges that went into storage (complete ranges H through QA 76.69), 79% of items were in three call number classes: H (Social Sciences), N (Fine Arts), and P (Languages and Literature). Unsurprisingly, 83% of the loans from storage also came from those three LC classes. Most significantly, books requested from the N call number range made up 21% of all requests processed by the storage company, even though holdings in that range made up only 11% of all books that went into storage. The subclass with particularly heavy usage in that range is N (Visual Arts), which makes up almost half of all requests from the N call number ranges. Art History (N5300-7418), specifically, is the source of the majority of requests in the subclass. For a university with a large Fine Arts program, this data provides further evidence of the reliance by Fine Arts faculty and students on physical formats.

Based on a detailed listing provided by the storage company in the follow-up to the project, the company handled 30,378 request and return transactions during the storage period. This number is well below the maximum number of 57,720 transactions specified in the RFP. However, that number was calculated for 12 months, with 40% of transactions projected for each of the winter and fall semesters and 20% expected over the summer. In the end requests were only made over 7 months (January through July), for which the estimated maximum was 31,746 transactions. Thus, the actual volume of 30,378 transactions proved to be very close to the estimate. However, the number of books requested turned out to be lower than projected, and the number of books returned higher. This is likely due to the final timing of the offsite storage move: undergraduate students returned large numbers of books to the library during and immediately after the packing and moving in December, as well as at the end of the winter semester in April-May.

**COSTS**

We were also curious to understand how the costs of using a commercial storage provider and their retrieval service compared to a different offsite storage solution. In their article describing the implementation of a temporary storage facility housing 325,000 volumes, Austin and Seaman (2002) provide a summary of their costs over 5 years, from 1997/98 through 2001/02, including building lease, utilities, shelving, equipment and supplies, moving expenses, and wages for the labor to support the move and the retrieval service. They conclude that their average annual cost was 88 cents per volume. (2002, 74).

In our case, storage was provided for 8 months and the retrieval service for 7 months. In order to arrive at a comparable annual cost, the monthly storage cost was simply multiplied by 12. The volume and cost of requests and returns was extrapolated for 12 months, based on the original 12-month projection in the RFP, and allowing for the slightly lower actual volume over the 7 months of service. By adding the actual expenses for packing, scanning, moving out and moving back the books to these calculated expenses for storage and retrieval, we arrive at a total annual cost of CAD$406,167 (US$313,492). Dividing the total by the 430,000 volumes stored yields an annual cost of CAD$0.94 (US$0.73) per volume. This compares favorably with Austin and Seaman’s costs of nearly 20 years ago, suggesting that using a commercial service provider for temporary storage may actually prove to be less expensive than setting up and running a remote book storage facility, particularly when installation expenses will not be amortized over a long period.

**LESSONS LEARNED**

Given the scale of the offsite storage project and the relatively short timeframe for planning, in general the experience went more smoothly than expected. There were no major issues with the packing and moving of the collection, nor with the methods employed for locating books at the warehouse and for maintaining the boxes in order during unpacking and re-shelving when returned to the library. Staff adapted easily to processing requests for offsite books, and after the initial period of surprise and some complaints in January, students adjusted to requesting books online and waiting for the deliveries. With the exception of the requests to raise the limits on holds, there were no complaints received from faculty. The volume of transactions over seven months was very slightly below the estimate, but was sufficiently high to justify the decision to provide access to the materials while in storage.

Nonetheless, in retrospect several aspects of the process could have been improved. The most important of these was the limit on requests, initially set at 5 concurrent holds per user. After considerable debate, this limit had been established by the Offsite Storage Working Group in an effort to contain costs; out of concern that there would be insufficient space on the hold shelves; and from a fear that a high proportion of books on hold are never checked out by requesting users. In the end the latter concern proved to be unfounded, as the percentage of unclaimed holds shrank by almost half for the period of January to May, from 16.07% on average in the previous year to 8.51% while material was in offsite storage. This is despite an increase in the total number of holds of 25% over the same period. At 42%, March’s increase in holds was the highest during the winter months, but the percentage of unclaimed holds in the same month was close to zero. It should be noted that during the summer months the percentage of unclaimed holds did increase over the previous year but the number of total holds was significantly fewer than during the winter months, so was of less concern. Finally, the limit of 5 concurrent holds caused complaints almost immediately from graduate students and faculty, and subsequently during the winter semester the limits were raised several times. In hindsight, a more reasonable approach would have been to set higher limits from the outset for faculty and graduate students and to raise the limit for undergraduate students sooner, since the volume of requests received was lower than expected.

The other restriction that provoked user complaints was the twice-weekly delivery service, on Tuesday and Friday mornings. Again, this parameter was established to control costs, since each delivery to the library incurred a base charge; to coordinate with circulation staff schedules; and also because the storage company staff did not retrieve or deliver items during weekends, except for rush requests. Having daily deliveries (Monday to Friday) instead would have cost an additional CAD$2,600 overall, while adding a third weekday delivery would have increased costs by less than CAD$900. While neither option would have resolved the issue of a longer wait for items requested between Friday and Sunday each week, the additional costs would probably have been justified in order to provide quicker access.

Certain issues arose with the packing and unpacking of books. During the first morning of scanning and packing books for storage, the document management company discovered that a few of their warehouse scanners were not configured properly to read the library’s barcodes and that using mobile phones with scanner apps was not efficient since the phones were trickier to position correctly to read the barcodes. Testing in advance with the full range of scanner types intended for use in the packing process, rather than the most common type, would have uncovered these issues early enough to resolve them before packing was underway.

Despite the effort of barcoding over 5,000 items prior to the move to offsite storage, the discovery of several hundred items lacking barcodes during packing resulted in those volumes being sent to storage unprocessed. This course of action was only feasible in the context of temporary storage and underscores the importance of having accurate and complete catalogue records when moving books into storage, as emphasized in the literature (Austin and Seaman 2002, Burton and Kattau 2013, Vargas 2005). As a result of this issue, the library is conducting a full inventory of its circulating collections in 2018-19.

As previously mentioned, due to some storage boxes containing a few books piled on top of the books placed in call number order, during the unpacking some handfuls of books were shelved incorrectly in numerous locations throughout the stacks. This problem was not identified early enough in the unpacking process to prevent its occurrence, necessitating a complete shelf-read of the 4th floor once the books were completely unpacked. However, the document management company has modified its procedures for subsequent library book storage operations.

Finally, despite the various means used prior to the move to communicate to library patrons that an entire floor of books would be offsite for several months, many undergraduate students were unpleasantly surprised to discover the absence of the books on their return to class in January 2017. It is impossible to over-communicate a disruption of this magnitude. Sending an email blast to over 36,000 undergraduate students, as had been done for faculty and graduate students, had not been judged practical by the Library Renovation Coordination Committee and the University Communication Services liaison. However, in hindsight, insisting on such a notice via email, as well as using social media earlier and more frequently to share information on the upcoming move, may have ensured more students were prepared in advance.

**CONCLUSION**

Finding a temporary storage solution for print books during a library renovation which ensures the books are still available to users is a significant challenge. Our experience demonstrates that using a commercial document management supplier is an effective option, providing appropriate facilities for book storage and a reliable mechanism for retrieval and delivery on demand, which could be efficiently integrated with existing library operations. As plans are now well underway to renovate the Vanier Library as well, there is every likelihood the Library will pursue this option again should temporary offsite storage of books be necessary, taking into account the various lessons learned from this experience.

**REFERENCES**

Atkins, Stephanie S., and Jennifer Hain Teper. 2007. “A Survey of Library Practices in Planning and Managing Temporary Moves.” *Collection Management* 30 (4):59-84. doi: 10.1300/J105v30n04\_05.

Austin, Brice, and Scott Seaman. 2002. “Temporary Remote Book Storage at the University of Colorado, Boulder Libraries: Facilities Planning, Materials Preparation, Selection, and Retrieval.” *Collection Management* 27 (1):59-78. doi: 10.1300/J105v27n01\_05.

Badia, Giovanna. 2015. “Everything Must Move: Coordinating the Implementation of a Large Collection Merger. In *Difficult Decisions: Closing and Merging Academic Libraries*, edited by S. Holder, and A. Butler Lannon, 191-200. Chicago: Association of College and Research Libraries. http://digitool.Library.McGill.CA:80/R/-?func=dbin-jump-full&object\_id=142643&silo\_library=GEN01.

Bird, Ruth. 2015. “Moving or Relocating a Library.” *Legal Information Management* 15 (4):260-63. doi:10.1017/S1472669615000626.

Burton, Fiona, and Maureen Kattau. 2013. “Out of Sight but not Lost to View: Macquarie University Library's Stored Print Collection.” *Australian Academic and Research Libraries* 44 (2):102-113. doi: 10.1080/00048623.2013.795473.

Clement, Susanne K. 2012. “From Collaborative Purchasing towards Collaborative Discarding: The Evolution of the Shared Print Repository.” *Collection Management* 37 (3-4):153-167. doi: 10.1080/01462679.2012.685413.

Demas, Sam. 2013. "Curating Collective Collections-Learning from Collection Management Kerfuffles." *Against The Grain*: 25 (1):78-79, 81. doi: 10.7771/2380-176X.6453.

De Souza, Yvonne. 2013. “Shelf to Shelf: Moving a Small Academic Library.” *Feliciter* 59 (6):51-53. http://www.community.cla.ca/wp-content/uploads/2016/03/59\_6.pdf.

Deutch, Miriam. 2001. “Paging a Library Collection: The Brooklyn College Library Experience.” *Collection Building* 20 (1):25-32. doi: 10.1108/01604950110382721.

Fontane, Walter M. 2016. “Assessing Library Services during a Renovation.” *Journal of Access Services* 13 (4):223-236. doi: 10.1080/15367967.2016.1250643.

Fortriede, Steven Carl. 2010. *Moving Your Library: Getting the Collection from Here to There*. Chicago: American Library Association.

Giffin, Meredith. 2016. “High Yield, Low-Risk Deselection in an Academic Library.” Paper presented at IFLA WLIC 2016, Columbus, Ohio, August 15.<http://library.ifla.org/1571/1/100-giffin-en.pdf>.

Habich, Elizabeth Chamberlain. 2010. *Moving Library Collections: A Management Handbook*. 2nd ed. Santa Barbara, CA: Libraries Unlimited.

Hazen, Dan. 2000. “Selecting for Storage: Local Problems, Local Responses, and an Emerging Common Challenge.” *Library Resources & Technical Services* 44 (4):176-183. doi: 10.5860/lrts.44n4.176.

Hill, J. B., Cherie Madarash-Hill, and Nancy Hayes. 2000. “Remote Storage of Serials: Its Impact on Use.” *The Serials Librarian* 39 (1):29-39. doi: 10.1300/J123v39n01\_04.

Horava, Tony, Harriet Rykse, Anne Smithers, Caitlin Tillman, and Wade Wyckoff. 2017. “Making Shared Print Management Happen: A Project of Five Canadian Academic Libraries.” *Serials Review* 43 (1):2-8. doi: 10.1080/00987913.2016.1274209.

Huhn, Kirsten, and Andréa Harland. 2014. “Making Space: How One Academic Library Dealt with Its Print Journal Collection.” *Argus* 42 (3):49-52.

Lindsay, Beth Daniel. 2017. “Moving the New York University Abu Dhabi Library.” *Collection Management* 42 (1):48-56. doi: 10.1080/01462679.2016.1264900.

Lucker, Amy. 2012. “Deal with the Devil: A Participatory Model for Off-Site Storage Selection.” *Art Documentation: Journal of The Art Libraries Society of North America* 31 (2):285-292. doi: 10.1086/668119.

Norton, Melanie J., and Adam S. Vardaman. 2005. “Maintaining Quality Document Delivery Service with Off-Site Storage Facilities.” *Journal of The Medical Library Association* 93 (3):394-397. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1175806/.

Peper, Michael T. 2008. “The Effect of Remote Storage on the Use of Books.” MSLS diss., University of North Carolina at Chapel Hill. https://cdr.lib.unc.edu/record/uuid:eed6285d-a202-4b81-a52c-9cf58d9642bb.

Sewell, Bethany B. 2013a. “A Bookless Library, Part I: Relocating Print Materials to Off-Site Storage.” *Journal of Access Services* 10 (1):43-50. doi: 10.1080/15367967.2013.738392.

Sewell, Bethany B. 2013b. “A Bookless Library, Part II: Managing Access Services with No In-House Collections.” *Journal of Access Services* 10 (1):51-60. doi: 10.1080/15367967.2013.738393.

Sievers-Hill, Arlene Moore. 2010. “Building Library Collections in the 21st Century -- There's Gold in Them There Shelves.” *Against The Grain* 22 (3):72. doi: 10.7771/2380-176X.5578.

Tolppanen, Bradley P., and Marlene Slough. 2004. “Providing Circulation Services in a Temporary Location.” *Journal of Access Services* 1 (4):115-127. doi: 10.1300/J204v01n04\_10.

Vargas, Mark A. 2005. “Using a Third-Party Vendor for Off-Site Storage of Library Materials: A Case Study of the Byrne Memorial Library, Saint Xavier University.” *Library Administration & Management* 19 (1):26-30. https://journals.tdl.org/llm/index.php/llm/article/view/1512.