

Library Lab Proposal: Collection Shift Estimation & Visualization Tool

Project Partners

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Project Idea

We propose to develop an open source tool that will assist library staff in planning and preparing for collection shifts by calculating linear feet required for a given call number range, identifying sections that need to be relocated, and visually displaying the location of materials before, during, and after the move. An additional benefit of this tool will be the ability to generate maps for patrons and staff that show the distribution of materials in a library. The tool might further be extended as a component of a smartphone app that would allow users to identify the specific location of a desired item within the library.

Building on the work of the Shelflife project (<http://librarylab.law.harvard.edu/projects/shelflife/>), this tool will use information in the standard MARC record to develop estimates and visually plot the information on a CAD representation of the building and library stacks. Information such as the number of pages in a volume can be used to estimate the space required on a shelf.

If implemented, the project team will write a paper for publication describing the tool, its use, and offering recommendations to other libraries that may wish to adapt the tool to their own operation.

Problems Solved

Collection shifts are challenging in that they require careful planning to estimate future needs as well as allocation of temporary "swing" space to facilitate the physical requirements of the shift itself. Planning and executing a collection shift without the aid of a tool such as the one that we propose is time consuming and prone to imprecision and inaccuracy. A number of variables need to be accounted for in project planning including:

- The space required for the books currently held by the library that fall into the affected call number ranges, including those currently checked out by library users
- The estimated rate of future acquisition in the affected call number ranges
- The anticipated minimum percentage of items that will be on loan at any given point
- The estimated number of years of collection growth to be accommodated by the shift

- The number of staff hours to commit in order to complete a project before a given date or within a definitive time frame

Developing accurate estimates is a time consuming process and varies widely among projects and libraries. To help give an idea of the range of work involved and the labor that might potentially be saved, we offer three examples:

- To shift one entire level of Widener requires roughly 18 student hours of measuring, 6 staff hours of calculating/planning, 6 staff hours training and supervising students, and 210 student hours of moving books. That would mean that this tool might have an impact on perhaps 8-10% of the total work involved in shift of an entire level. Widener typically does between one and three full-level shifts per year in addition to several smaller rotations.
- The ongoing collection shift at Law is very large and complex, requiring sometimes as much as 100 hours of student labor per week. The project initially required over 100 hours to measure and develop the first estimates, and additional remeasuring and recalculation were necessary to make adjustments in the middle of the project. Developing a tool that will quickly generate initial estimates and support recalculation in the middle of a project would significantly reduce time spent planning for projects like this.
- The ongoing project at the Divinity Library is estimated to take about 400 hours when completed. Roughly one-third to one-half of the project hours will have been devoted to planning/measuring/calculating, largely due to the need to rework estimates mid-project. Because Divinity needs to shift materials much less often than a library like Widener, they have less experience with creating accurate estimates. Because collection use varies seasonally, calculations needed to be revisited midway to account for new information.

A significant benefit of this project is that this information could be displayed visually on a CAD drawing of the stacks to assist staff in the planning, direction, and execution phases of a collection shift. Additionally, these same CAD representations used for collection management planning could later be repurposed after the project to make handouts or web page elements to help orient visitors to the stacks and show the location of a given item or call number range.

Relationship to Existing Activities

This project is closely related to and grows out of an awareness of a number existing activities at Harvard Library:

- Collection shifts (also known as rotations) are a regular activity at libraries throughout the system, and are a critical part of managing and maintaining collections within allocated space in order to provide maximum access and benefits for users.
- Space for storage of collections is costly, and requires providing both short-term relief (both on- and off-site) as well as developing a longer-term plan to accommodate growth. Accurate forecasting of the space needed to house a collection can help to inform a variety of collection management and library budget decisions.
- This project very likely could use much of the code already developed for the Shelflife project

- As an added benefit (though not a primary purpose), this project could aid in the creation of stacks maps already produced manually at many libraries, and could even be repurposed to create dynamic web-based mapping applications

Similar Activities at the Harvard Library

We are not aware of another effort at the Harvard Library to create tool to help plan and manage collection shifts.

Resources Required

Short Term

- Project manager (Andrew Wilson)
 - 20-40 hours meeting with developers and guiding project
- Software developer(s) to build the tool
 - 140 hours (estimated by comparison to Inscriptio project)
- CAD designer
 - Effort will vary on the basis of project chosen
- Staff/student time to perform the work associated with the pilot shift project
 - 10-15 hours entering data associated with the project

Long Term

- Software developer time to maintain, update, and extend tool
- CAD designer to extend tool for new locations

Budget Outline

We need assistance in creating a budget estimate.

Measuring Benefits

Benefits of this project will be measured with reference to two factors:

- Time saved in planning and calculating collection shifts: Estimating and planning shifts can be time consuming, and, if done by hand, error-prone. Maximizing the efficiency of staff time spent on collection shift projects while reducing the potential for manual or other calculation errors will be the primary immediate benefit
- Accuracy of estimate: as books are acquired into circulating collections over time, we will be able to observe the tool's accuracy in estimating future needs on the basis of past usage and acquisition data

Evaluating Success or Failure

Success will be evaluated on the basis of the same factors used to measure benefits. If possible, the pilot project selected will allow for comparison to a previous collection shift of similar size and scope.

Advantages of using the tool will be assessed by comparing the investment of staff hours required to plan and execute a project with and without the tool and how closely the estimates calculated using the tool accommodate future growth and use over time.