



The Library of Congress
Office of the Inspector General



Library of Congress

*The Library Should Reassess the
Need for a Book Conveyor System*

Audit Survey Report No. 2010-PA-101
August 2010



UNITED STATES GOVERNMENT

LIBRARY OF CONGRESS

Memorandum

Office of the Inspector General

TO: James H. Billington
Librarian of Congress

August 24, 2010

FROM: Karl W. Schornagel
Inspector General

SUBJECT: Book Conveyor System Renovation Project
Report No. 2010-PA-101

This transmits our final report summarizing the results of the Office of the Inspector General's audit survey of the Library of Congress book conveyor system upgrade project. The executive summary begins on page *i* and our findings and recommendations appear on pages 4 to 7.

Based on the written comments to the draft report, we consider all of the recommendations resolved. Please provide, within 30 calendar days, an action plan addressing implementation of the recommendations, including implementation dates, in accordance with LCR 211-6 §11.A.

We appreciate the cooperation and courtesies extended to our staff during this review by the Law Library and Library Services.

cc: Chief of Staff
Associate Librarian for Library Services
Law Librarian of Congress

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▶▶ EXECUTIVE SUMMARY

In 1964, the Library of Congress installed a book conveyor system in the Jefferson Building. In the ensuing years, the Library would install two more book conveyors in the Adams and Madison Buildings. The purpose of the book conveyor was to provide efficient and timely transfer of books and other materials from the Library's repositories to staff and the public for use within the confines of the Library. However, over the years the system has proved unreliable.

In April 2006, the book conveyor began experiencing significant malfunctions. The system had become so unreliable that Library Services discontinued its use and adopted a manual delivery system. The system was completely shut down in February of 2008. Over the next four years, the Architect of the Capitol, who is responsible for the care and maintenance of the system, plans to award two major contracts to design and renovate the existing book conveyor, based on the *Book Conveyor Integration and Upgrade Study* completed in 2006. The Library has not revisited its requirements since the 2006 study.

This report summarizes the results of our audit survey of the book conveyor system upgrade project. Our survey objective was to determine if a book conveyor system for the Library was still adequately justified.

We concluded that plans to renovate the Library's book conveyor system are no longer justifiable. Specifically, we determined that constructing and maintaining a new book conveyor system would be significantly more costly than continuing to manually transport books and materials between the Library's buildings. Further, growing Internet access to many collection materials and a reduced number of book and material requests have substantially diminished the need for a book conveyor system.

Accordingly, the Library should reassess its plans to renovate the book conveyor system and determine the most economical way to decommission it.

Management concurred with our recommendations. The full text of management's response is included as an appendix.

▶▶ BACKGROUND

Until a few years ago, the Library had in place a mechanical book conveyor system, used by the Law Library and Library Services' Collections Access, Loan, and Management Division (CALM) to transfer books and other collection materials between the Library's three Capitol Hill buildings. As the conveyor is a building component, responsibility for maintaining the system lies with the Architect of the Capitol (AOC), who maintains the Library's buildings and grounds.

The system was fully operational until about 2006, when increasing reliability problems caused CALM to stop using it. The Law Library continued to use the system until 2008, at which time the conveyor stopped working altogether. Since then, materials have been delivered manually to their intended locations.

The system passes through firewalls and vertically through multiple building floors. A March 2001 safety inspection report concluded that unprotected openings and inadequate fire resistance throughout the Library's book conveyor system were posing a danger from smoke and toxic fumes to the buildings' occupants. As a result, the Office of Compliance¹ issued seven citations to the Library.

In 2003, the Librarian requested that a study be conducted to assess potential options for repair or replacement of the system. The *Book Conveyor Integration and Upgrade Study* was jointly issued by two contractors: HSMM, an architectural and engineering planning firm, and Facilities Planning Services Group in November 2006. The study concluded that the cost to renovate certain portions of the system would be approximately \$8 million. Based on the study's results, the Library decided to renovate the existing book conveyor system in the Jefferson and Adams Buildings and in one section of the Madison Building.

Updated information provided by the AOC indicates that this cost would now be closer to \$16 million. The cost to shut down the system and abate the safety issues was estimated in

¹ The Office of Compliance is an agency established to administer the Congressional Accountability Act (CAA). The CAA applies, among others, workplace safety and health laws to the U.S. Congress and others.

the study to be \$3.3 million. The AOC now maintains that instead of simply shutting the system down and sealing firewall penetrations and floor openings, it would completely remove the system at a cost of \$6 million. We believe the most economical method to decommission the system while properly abating safety issues should be chosen.

In 2009, the AOC awarded a \$350,000 contract for the design of fire safety improvements for the book conveyor system and, in the next four years, plans to award two major contracts to design and renovate the existing system. The project is scheduled to be complete by 2017.

▶▶ OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of our audit was to determine if the Library had conducted a proper cost-benefit analysis and project plan for the book conveyor system. We focused on identifying key changes that have occurred since 2006, when the Library decided to renovate the system, and on the volume of reading room requests for materials in fiscal years 2004 and 2009.

As a result of our preliminary findings, the Library decided to cancel the conveyor project; therefore, we considered our project complete, and modified our objectives to comparing the costs of the various options available to the Library.

We reviewed technical studies and cost analyses on the existing book conveyor system, which were performed by outside parties. We also interviewed CALM and Law Library officials to 1) obtain an understanding of the Library's current methods of transporting books, 2) identify the costs of those methods, and 3) collect information to determine whether the planned system would yield significant operating efficiencies. Additionally, we surveyed the existing system to understand more clearly the details of the planned project.

We conducted this survey in May and June 2010 in accordance with generally accepted government auditing standards and LCR 211-6, *Functions, Authority, and Responsibility of the Inspector General*. Government auditing standards require that we plan and perform the survey to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our conclusions based on our audit objectives.

►► FINDINGS AND RECOMMENDATIONS

Early in our survey, we determined that the cost of renovating the system far exceeded the cost of manual delivery, and that it did not appear that a renovation of the system was economically viable. Because of the possibility of an upcoming award by the AOC of a major contract to renovate the system, we immediately met with the Library to discuss our preliminary findings and recommendations.

a. Manual Deliveries Less Costly

The Library's decision in 2006 to renovate its book conveyor system was based on then-current needs of CALM and the Law Library, and was made before those two organizations stopped using the system. Once the system completely failed in 2008, the two organizations had no choice but to transport books and materials manually.

Our analysis indicates that constructing and maintaining a new book conveyor system would be significantly more costly than continuing to manually transport books and materials.

The renovation project is estimated to cost more than \$16 million. The cost of maintaining such a system would be more than \$90,000 a year. To decommission the conveyor and abate the fire safety issues was estimated in the 2006 survey to cost approximately \$3.3 million and a complete system removal is currently estimated by the AOC to cost \$6 million.

The cost to manually transport materials is approximately \$129,000 per year. CALM currently employs three full-time staff to deliver materials between the Madison, Jefferson, and Adams buildings at an estimated annual cost of \$116,000. The Law Library, which uses CALM employees to transport material to the Jefferson and Adams Buildings, has six technicians who help move material between the Law Library's stacks and reading room, both of which are located



Section of the book conveyor system in the Jefferson Building.

in the Madison Building. The Law Library's estimated annual cost to manually move material is \$13,000, based on a total of ten ten-minute trips per day.

The Law Library and CALM have managed to efficiently and effectively transport books and materials since the demise of the conveyor between 2006 and 2008. Neither organization has increased staffing levels, choosing instead to reallocate existing resources. Moreover, customers report that manual deliveries are faster and more reliable than the book conveyor was.



Section of the book conveyor system in the Jefferson Building.

b. Impact of Growing Internet Access

The explosive expansion of access to and use of the Internet to retrieve information has had a significant impact on the ways the Library manages and makes information available to its patrons. Notably, the Library increasingly:

- maintains and promotes the use of digital library standards,
- provides online research and reference services, and
- makes available its collection materials digitally.

All things considered, the Library offers one of the largest noncommercial bodies of high-quality content accessible on the Internet. The Library's March 2003 Digital Strategic Plan places heavy emphasis on continuing to make resources available in electronic form.

The online availability of so much of the Library's material is having a major impact on the volume of collection items physically moving about the Jefferson, Adams, and Madison buildings. CALM's annual reports indicate that the number of collection items circulating in the Library's offices and general reading rooms dropped by 30 percent from fiscal year (FY) 2004 to FY 2009 – 404,315 versus 284,018 items.

These statistics indicate that demand for a book conveyor system was substantially lower in FY 2009 than it was in FY 2004. Moreover, we believe that these statistics represent a downward trend which will continue as the volume of digitized Library material increases and the Internet becomes even more widely accessible.

There appears to be a newly-minted controversy regarding the decommissioning of the system. In 2006, the HSMM study concluded that the cost to abate fire safety issues would be about \$3 million. Early in our fieldwork, the AOC advised us

that the “conceptual cost” of abating fire safety issues would be about \$1 million. After we discussed our initial findings with the Library, which decided to cancel the project, the AOC advised us that it would prefer to completely remove the system at an estimated cost of \$6 million or more. We urge the AOC to choose the most economical way to decommission the conveyor; complete removal may not be necessary to abate fire safety issues.

	Present Value
Cost of New Construction	\$ 15,051,860
Manually Operating/HSMM Demolition Estimate	4,945,676
Manually Operating/AOC Demolition Estimate	7,234,192
Funds Available for Better Use	\$7,817,668–\$10,106,184
Table 1: Comparison of Costs for Building New Book Conveyor vs. Manually Delivering Books	

We conclude that the AOC would expend \$7.8 to \$10.1 million more on behalf of the Library to renovate the conveyor as opposed to decommissioning it. Cancelling the project would therefore result in \$7.8-10.1 million in savings to taxpayers. The AOC has already expended \$428,000 in planning the project, of which we consider \$350,000² to be wasted funds. In Table 1, we detail a comparison of the costs of each option, using present values where appropriate. Further detail on these calculations can be found in appendix A.

Recommendations

We recommend that the Library:

1. Immediately put the upgrade project on hold and reassess its need for the book conveyor system, and

² \$350,000 was the cost to design fire safety improvements for the planned system renovation.

2. Work with the AOC to determine the most economical way to decommission the system while properly abating safety issues.

Management Response

Management concurred with our finding and recommendations.

» CONCLUSION

The decision to design and construct a new book conveyor system for the Library is based on outdated information. Changing customer needs have significantly altered the Library landscape. In light of this, we believe the project is no longer economically viable.

We are pleased to report that as of the writing of this report, the Library has decided to end the book conveyor project, thus saving taxpayers approximately \$7.8-10.1 million.

Major Contributors to This Report:

Nicholas Christopher, Assistant Inspector General for Audits

John Mech, Lead Auditor

Elizabeth Valentin, Auditor

▶▶ APPENDIX A: COSTING DETAILS

Description	Nominal Dollars	Present Value ³
Cost to Renovate Book Conveyor		
Mechanical Design–2010	\$ 1,170,000	\$ 1,170,000
Mechanical/Fire Barrier/Controls Construction–2014	15,500,000	12,446,024
Yearly Maintenance–20 service years, using 2010 as the base year and 2017 as the first year, with annual adjustments for inflation.	2,995,693	1,435,835
Total Renovation	\$ 19,665,693	\$ 15,051,860
Cost of Manual Deliveries using 2006 Study Fire Abatement Estimate		
Yearly Cost of Delivery Labor–20 service years, using 2010 as the base year and 2017 as the first year, with annual adjustments for inflation.	\$ 4,258,062	\$ 2,040,889
2006 Study demolition/fire abatement	3,356,000	2,904,787
Total to Abate Fire Safety Issues	\$ 7,614,062	\$ 4,945,676
Cost of Manual Deliveries using 2010 AOC Complete System Removal Option		
20-year operational cost (see above)	\$ 4,258,062	\$ 2,040,889
2010 AOC Complete System Removal estimate	6,000,000	5,193,303
Total to Completely Remove System	\$ 10,258,062	\$ 7,234,192
Funds Available for Better Use	\$9,407,631 To \$12,051,631	\$7,817,668 To \$10,106,184

³ The assumptions for these calculations are as follows: 1) the present value of future costs was derived based on a 4.5 percent annual interest rate. This approximates the current interest on a 30-year treasury bond, 2) yearly maintenance and operation costs were adjusted for inflation using an annual rate of 3 percent, and 3) the new book conveyor system’s life span is 20 years beginning in 2017.

▶▶ APPENDIX B: MEMORANDUM FROM MANAGEMENT

UNITED STATES GOVERNMENT

MEMORANDUMLibrary of Congress
Library Services

June 24, 2010

TO: Mary Levering
Director, Integrated Support Services

FROM: Deanna Marcum *DM*
Associate Librarian for Library Services

Robert Shaffer *RS*
Law Librarian of Congress

SUBJECT: Book Conveyor System Needs Reconsidered

Following the meeting of June 23, 2010 with representatives of the Inspector General's Office I have consulted with the Law Librarian, Roberta Shaffer, to agree on a consensus position regarding the Book Conveyor System. It is our strong opinion that all efforts by Integrated Support Services and the Architect of the Capitol on the design and installation of a replacement system should cease.

The current system has deteriorated over time, and neither Library Services nor the Law Library has used it for years. In 2006 a consultant report recommended a solution, which would have cost approximately \$16 million. At that time there was support in critical positions for the rehabilitation of the system; however, there is now unanimity of opinion that the system should not be renovated or replaced. In the intervening years, we realize that the Library can transport requested materials far more economically, accurately and effectively with staff than with a new mechanical solution. Further, the current budget climate and the criticality of other needs, such as constructing additional modules at Ft. Meade, lend additional support to this decision.

We appreciate ISS support throughout this long process. It would be wasteful to expend further staff effort and financial resources on the replacement or repair of the system. The Architect of the Capital should be encouraged to address the remaining safety issues as expeditiously and quickly as possible.

Finally, we would welcome your support of any proposal to apply funding which might have been directed to the Book Conveyor System replacement to the construction of Module 5 in the Ft. Meade complex. The appropriators have asked what priorities the Library might be willing to forgo in favor of Module 5, and the savings created by this decision might constitute an appropriate answer.

cc: Nicholas G. Christopher, OIG


▶▶ APPENDIX C: MANAGEMENT RESPONSE

UNITED STATES GOVERNMENT

Memorandum

LIBRARY OF CONGRESS

Date: July 26, 2010

TO: Karl W. Schornagel
Inspector General**FROM:** Deanna Marcum 
Associate Librarian for Library Services**SUBJECT:** *The Library Should Reassess the Need for a Book Conveyor System,*
Draft Survey Report No. 2010-PA-101, July 15, 2010

Listed below are responses to the findings and recommendations contained in the Office of the Inspector General (OIG) audit of the Library of Congress' future plans for the book conveyor system.

I concur with the findings and recommendations contained in the draft survey. The significant cost of providing a fully functional and integrated system is not supported by the current demand for such a system and the cost associated with providing it. Experience with manual delivery over the past several years has proven to be an effective, economical and dependable alternate means of transporting collections, and is the recommended method of delivery for the future.

I also strongly concur with the recommendation to determine the most economical way to decommission the system. It is Library Services' desire to ensure that all safety and Office of Compliance issues are satisfactorily addressed, while also ensuring that this is done with the least disruption to service and collections storage areas, and at the least cost to the Government.

Following are specific comments on the draft survey:

Page 1. The name of the division is the Collections Access, Loan and Management Division, not the Collections Access and Loan Management Division.

Page 1. I believe that citations of this nature are issued to the Office of the Architect of the Capitol, not to the Library of Congress.

Page 1. I do not believe that the Librarian was the impetus behind the repair or replacement of the system. HSMM had an open-ended contract with the AOC to perform a variety of projects.

BUY U.S. SAVINGS BONDS THROUGH THE PAYROLL PLAN

Page 6. I do not agree with the statement that the money already spent are “wasted funds.” Since the development work to date was proceeding under an agreed-upon goal of an operational, integrated system, there was no waste. However, we reassessed the situation in terms of updated levels of demand for the system, experience with alternate delivery methods, and the increasing cost of providing a fully operational, integrated system.

Page 6. Under “Recommendations,” the word “determine” is cut off.
Other. I don’t see any reference to the money that the Architect of the Capitol already has available to do work on the system. My understanding is that the AOC has approximately \$2.5 million that was scheduled to be used for upgrade to the electronic components of the system. By not using this money for that purpose, this should add to the savings realized by not pursuing the non-life safety actions.