

**The Direct Costs of Filing
Non-Resident Connecticut Transactions**

*Findings of a study conducted
For the Connecticut State Library*

by

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In August 1973 the then-Connecticut State Librarian, Walter Brahm, proposed starting the Connecticard program with a payment of "\$0.90 - \$1.00 per net loan." His estimated reimbursement range is strikingly close to the median unit cost (\$1.05) of a circulation transaction to a non-resident in 2003/2004.

EXECUTIVE SUMMARY

The median, or midpoint, unit cost of a circulation transaction for the 27 Connecticard libraries participating in this study is \$1.05. The average unit cost is \$1.27. Unit costs for the 27 participants ranged from \$0.71 to \$4.26. The participants were chosen to ensure a representative sample based on geography, number of non-resident loans transactions, and collection size.

Staff costs account for 92 percent of the median unit cost, equipment costs represent 4 percent, network costs account for 2 percent, and the cost of supplies for 2 percent.

The 27 participants expended a total of \$1,679,231 in providing services to non-residents and were reimbursed just over \$244,000, or \$1.4 million less than their costs. In other words, these participants were reimbursed for just 15 percent of their expenses in filling transactions to non-residents.

In 2003-04 the 168 Connecticut libraries filled 4,651,057 Connecticard loans. These 168 libraries incurred direct costs of \$4.9 million in providing services to residents of other localities. Using the median unit cost of \$1.05, Connecticard libraries are

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investing \$4.2 million to provide services to residents from other communities.

INTRODUCTION

The Connecticard program enables Connecticut residents to use their local public library cards to check out materials from nearly 200 public libraries participating in the program. Patrons may return materials to their local library, the owning library, or to any Connecticard library participant. The Connecticard delivery service supports the program by returning materials to the owning library.

This circulation-based, cooperative resource-sharing program is highly successful. In 2003 library patrons generated over 4.5 million Connecticard transactions. The program has been funded since its inception 30 years ago, but the funding level has not kept pace with the increase in the number of transactions over that same period. Currently, the program is funded at a level of approximately \$676,000. The current reimbursement model provides participants with \$0.07 for each loan and \$0.17 for each net-plus loan.

In April 2004 the Connecticut State Library issued a Request for Proposal (RFP) to determine the direct costs of providing non-resident loans in Connecticut public libraries. The RFP was issued as a result of a recommendation by the Connecticard Task Force for such a study in order to objectify the overwhelming testimony from public libraries that they are not adequately reimbursed for loan service to non-

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residents, and to develop a successful strategy for obtaining additional funding for the program.

The Association of Research Libraries (ARL), with Mary E. Jackson as Principal Investigator, was selected to undertake the study. This final report is the result of collaboration among the State Library staff, Task Force members, and librarians in the 27 libraries who completed the data collection phase. ARL extends its appreciation to everyone who helped make this undertaking a success.

THE PARTICIPANTS

The State Library extended an invitation to all Connecticut public libraries to participate in the study. Efforts were taken to ensure a representative sample based on geography, number of non-resident circulation transactions, and size of collection. Thirty-one libraries initially agreed to participate, and twenty-seven completed the forms, for a participation rate of 87 percent. Twelve participants (44%) were net-plus libraries for the period March 2003 to February 2004 and the remaining fifteen received reimbursements for their loans.

The participants include:

- Berlin-Peck
- Bridgeport
- Canterbury
- Cheshire
- Darien
- East Hampton
- East Lyme
- Easton
- Enfield
- Essex
- Fairfield
- Granby
- Groton
- Guilford
- Ledyard

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Manchester
Middletown
Norwalk
Old Lyme
Portland
Rocky Hill
Stamford
Wallingford
West Hartford
Willimantic
Wilton
Woodbridge

THE METHODOLOGY

Over the past decade the Association of Research Libraries (ARL) has undertaken three studies of interlibrary loan (ILL) operations in research, academic, special, public, and governmental libraries. These studies, undertaken in 1992, 1996, and 2003, tracked the performance of mediated interlibrary loan operations in 267 libraries. In addition, the ARL methodology has been adapted to track ILL performance in over 200 Australian and Nordic academic, public, special, and governmental libraries. ARL's 2004 Assessing ILL/DD Services Study measured the performance of mediated ILL/DD services as well as six user-initiated services.¹

For this study, ARL adapted the worksheets used in the 2004 study to focus on circulation transactions. Six worksheets collected cost data on staff, network/communication, delivery, photocopy, supplies, and equipment (hardware and software). A second worksheet was developed to enable participants to track staff time spent on circulation-related tasks for those individuals who have multiple responsibilities in the library. The worksheets and general instructions are included in the Appendix.

¹ Mary E. Jackson, *Assessing ILL/DD Services: New Cost-Effective Alternatives* (Washington, DC: Association of Research Libraries, 2004). A summary of key findings is available at http://www.arl.org/stats/newmeas/ill_flyer.html/.

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The consultant met with representatives from the State Library and Task Force at the Middletown Library Service Center on August 10, 2004. The group reviewed plans and goals for the study, revised and clarified data collection options, agreed that a few libraries would pilot test the instruments, discussed how participants were to be selected and the number that should participate in the study, and set deadlines and an overall timetable.

At this meeting, participants also agreed to track only the direct costs of a circulation transaction. Since indirect costs, such as maintaining the collection, cataloging tasks, or operation of the building, would continue to be incurred independent of non-resident lending. Those indirect costs are excluded from the study, which is consistent with the three previous ARL studies.

As background, the State Library provided a number of detailed and useful statistical reports and data, as well as background information and comments on the current reimbursement formula. State Library staff contacted libraries and developed the final list of participants.

A half-day general meeting and training session was held on September 14, 2004 at the Wallingford Public Library. That session gave participants a more detailed understanding of the data to be collected, the worksheets, and the process for collecting data. The State Library distributed Excel files of the worksheets to the participants.

Over the next four weeks, participants collected data, and sent a number of questions to ARL. ARL shared questions and answers of a general nature to all participants to increase consistency of the data collection effort.

Approximately two-thirds of the participants submitted completed Excel work by the October 15,

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2004 deadline. ARL reviewed the forms and contacted a number of participants with follow-up questions. By the end of October, forms from 27 participants were complete; responses from these 27 libraries form the dataset used to calculate the unit cost.

The findings of the investigation will be presented to the library community at a public meeting in Hartford on December 3, 2004. That meeting will provide additional background on the study to permit the Connecticut public library community an opportunity to understand the findings and the process of developing a successful reimbursement strategy.

It is important to note that this is the first statewide study in Connecticut of the cost of a circulation transaction using one methodology. Several libraries have used more informal or methodologies developed locally to calculate unit costs to fill non-resident loans. Their unit costs range from \$0.882 to \$4.15, but those local calculations are not consistent with the unit costs for those libraries using this methodology. It may be more a coincidence that the locally calculated unit costs fall within the range of unit costs reported in this study. Any institution-specific unit costs that did not use this methodology should not be compared to the unit costs reported in this study.

THE FINDINGS

The median, or midpoint, unit cost of a circulation transaction for the 27 participants is \$1.05. The average unit cost is \$1.27. Unit costs for the 27 participants ranged from \$0.71 to \$4.26. Because of this wide variation, the median unit cost is the more reliable measure as it better reflects the “typical” unit cost incurred by a public library in this study.

The unit cost was calculated using July 2003 to June 2004 circulation transactions. The study measured

the cost of circulation transactions to residents and non-residents in the main library rather than the entire library system. The consultant, State library staff, and the participants agreed that tracking just loans to non-residents would be too challenging, and thus agreed to measure the cost of a circulation transaction to local and non-resident citizens. This study assumed that the costs of circulating to non-residents did not vary significantly from circulating to residents. It also assumed that the format of the item being checked out does not impact the time it takes to complete the transaction. Thus, the study assumed that the checkout of a DVD or other audiovisual item takes the same amount of staff time as a book or a paperback.

The participant libraries varied in what they reported in each of the six categories (staff, network/communication, delivery, photocopy, supplies, and equipment). Table 1 summarizes the number of libraries reporting data for each category.

Table 1: Number of Participants Reporting Data by Cost Category

COST CATEGORY	NUMBER AND PERCENTAGE OF LIBRARIES REPORTING DATA
Staff	27 (100%)
Network/communication	22 (81%)
Delivery	22 (81%)
Photocopy	13 (48%)
Supplies	27 (100%)
Equipment (hardware and software)	27 (100%)

It is possible that a library did not incur costs in one or more categories. A few libraries reported no network/communication costs as they noted that their local municipality paid their phone/fax bills. Several reported no delivery costs; these libraries may use email to send overdue notices to patrons or their local municipalities paid the postage costs. Others

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may not photocopy forms and labels, but purchase them and report those expenses in the supply category rather than in the photocopy category. Having a range of costs reported for each category is a normal characteristic of the three ARL studies.

All participants submitted costs for the supplies and equipment categories. The amounts reported for equipment varied from less than \$200 to over \$50,000. Again, a library that reported a lower amount may have had equipment and software purchases paid by the local government whereas a library that reported a higher amount paid for hardware and software out of the library budget.

Staff costs account for 92 percent of the median unit cost; equipment costs represent 4 percent, network costs account for 2 percent, and the cost of supplies is 2 percent. In comparison, the 2004 ARL ILL/DD study found that staff costs made up 82 percent of the average unit cost of a user-initiated loan transaction.

There is a weak positive correlation (0.067) between unit cost and collection size. A moderately strong positive correlation (0.4596) exists between total costs of filling non-resident loans and collection size of a library. Although libraries with larger collections may have greater expenses in filling non-resident loans, the higher number of non-resident transactions normally lowers their unit cost.

The impact of geography was also examined by calculating the average unit cost for the participants in a county. Participants represented libraries in six of the eight Connecticut counties. In order to ensure confidentiality of data, the counties will not be named, but will be listed by letter. Table 2 shows the average unit cost by county.

Table 2: Mean Unit Cost by County

County	Average Unit Cost
A	\$1.04
B	\$1.06

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C	\$1.13
D	\$1.15
E	\$1.27
F	\$2.77

It is interesting to note that in August 1973 Walter Brahm, the then-Connecticut State Librarian, proposed starting the Connecticard program with a payment of "\$0.90 - \$1.00 per net loan."² His estimated range for reimbursement was not based on any cost studies, but the \$1.05 median unit cost for a non-resident loan in 2004 is strikingly close to the amount proposed in 1973.

APPLYING THE FINDINGS TO NON-RESIDENT LOANS

Using data supplied by the State Library, the consultant calculated the total cost of providing service by the participating libraries to non-residents. Each library's unit cost was multiplied by the number of non-resident loans the library filled in 2002-03. These 27 participants expended a total of \$1,679,231 in providing service to non-residents, or approximately \$1.4 million more than they are reimbursed under the current funding level for Connecticard.

In 2003-04 all 168 Connecticard participants filled 4,651,057 Connecticard loans. These libraries incurred direct costs of \$4,883,610, calculated using the median unit cost of \$1.05. The appropriation of \$676,026 represents just 13.8 percent of the direct costs of all 168 libraries. In other words, Connecticard libraries invested \$4.2 million to provide services to residents from other communities in 2003-04. However, this amount does not take into consideration the benefit a library receives when its own patrons borrow materials from other libraries or the heavier burden on net lending libraries over net borrowing libraries.

² Joanne Turschman, "Connecticard: Connecticut's Reciprocal Borrowing Program for Public Libraries, 1970's, 80's, 90's and Today." October 11, 2002, [3].

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There is a very weak negative correlation of -0.0517 between a library's unit cost and the number of loans to non-residents. That is, as the number of loans to non-residents increases, the unit cost drops slightly. Libraries with large numbers of transactions to non-residents do spend more overall than libraries with few loans to non-residents. This study did not attempt to quantify the incremental costs that a library incurred because it needed to add staff to a circulation desk to handle the increased volume of transactions to residents and non-residents.

COMPARING CIRCULATION AND INTERLIBRARY LOAN EXPENSES

Encouraging Connecticut residents to use Connecticutcard to obtain materials is a very cost-effective strategy. Handling the 4.5 million transactions in 2003 as mediated interlibrary loan (ILL) transactions would have cost Connecticut public libraries over \$30 million, based on an average unit cost of \$26.77 from the 2004 ARL study.

Savings are also realized when the program is compared to user-initiated ILL systems. The average and median unit costs of \$1.27 and \$1.05 respectively are approximately one-half the average unit cost of the ILLINET Online (\$2.39) or INN-Reach (\$2.89) systems, as reported in the ARL study. This study of circulation costs in Connecticut public libraries confirms that supporting resource sharing by a statewide circulation program is more cost-effective than a user-initiated system in which patrons place holds on items in a union catalog and library staff process and delivery those items to the patrons' local libraries. If delivery costs were eliminated from the unit costs for ILLINET Online and INN-Reach, the unit costs would still be \$2.36 and \$2.32 respectively. If these 4.5 million transactions were handled as user-initiated ILL at an average cost of \$2.34, those transactions would have cost Connecticut public libraries \$10.5 million.

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Connecticut public libraries, and thus the state funding agencies, are realizing cost savings of between \$5.5 and \$25 million annually by supporting, encouraging, and promoting circulation-based transactions rather than mediated or user-initiated interlibrary loan.

CONCLUSION

The Connecticard program has provided quick, efficient, and cost-effective service to Connecticut residents for thirty years. The program permits a resident with a valid borrower's card from a local public library to use that card to borrow materials from 194 public libraries in the state. When first established, payment to public libraries was envisioned to be in the range of \$0.90 to \$1.00 per net loan. In 2003-04, the program handled 4.5 million transactions, with reimbursement rates of \$0.07 for each loan and \$0.17 for each net loan.

This study measured the direct costs of a circulation transaction in Connecticut public libraries. The median unit cost is \$1.05, and the average unit cost is \$1.27 for the 27 libraries that submitted data. These findings confirm that the current reimbursement rate to libraries covers only a very small portion of the costs to serve residents of other communities.

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APPENDICES

- A. Cost Worksheets**
- B. Staff Time Worksheet**
- C. Hints for Completing the Cost Study Instruments**
- D. Summary of Other Programs and Recommendations for Reimbursement Models**

APPENDIX A: COST WORKSHEETS

Worksheet 1: Staff Costs				
INSTITUTION:				
Staff	Type of Circulation Staff	Number of Hours Spent on Circulation Tasks - per Year	Hourly Rate, including Fringe Benefits, if Applicable	Annual Salary
<i>Example</i>	4	260	\$13	\$3,250.00
Circ. Staff				
Other Staff				

Type:
 1=Prof. Supervisor
 2=Prof. Non-Supervisor
 3=Sup. Staff Supervisor
 4=Support Staff
 5=Part-time Staff

Worksheet 2: Network and Communication Costs		
INSTITUTION:		
	Total	% Circulation
Phone		
Local		
Long Distance		
Other networks		

Worksheet 3: Delivery Costs	
INSTITUTION:	
	Circulation Expenditures
Commercial delivery services (other than Ccar)	
Courier services (Other than Ccar)	
Fax	
Postal service (mailing overdues, etc.)	
Other	

Worksheet 4: Photocopy Costs	
INSTITUTION:	
	Circulation Expenditures
Photocopy costs	

Worksheet 5: Supplies Costs	
INSTITUTION:	
	Circulation Expenditures
Supplies	

Worksheet 6: Equipment, Software, and Maintenance Costs							
INSTITUTION:							
	Item	Age in Years	Expected Lifespan in Years	Purchase price	Recurring costs	Total cost for circ.	% used
Example	Computer	2	3	\$2,500.00	\$0.00	\$2,500	

APPENDIX B: STAFF TIME WORKSHEET

**Ccard Non-resident Loan Cost Study
Staff Time Spent on All Circulation Transactions**

	Start	End	Total	Start	End	Total	Start	End	Total	Grand Total
Create Circ. Records										
Check out items										
Check in items										
Reshelve material										
Wrap for CCar										
Unwrap for CCar										
Place holds										
Handle overdues										
Handle recalls										
Handle lost items										
Handle fines										
Communicate with patron										
Deal with problems										
Other (please detail)										

APPENDIX C: HINTS FOR COMPLETING THE COST STUDY INSTRUMENTS

C-Card Non-Resident Loan Cost Study Fall 2004

Hints for Completing the Cost Study Instruments

1. The study will collect data on all circulation transactions, but the unit cost for loans to non-residents will be calculated using direct costs. The cost of the collection, heating/lighting, and other indirect costs are excluded. We are combining the tasks related to the local patron with the tasks related to the item owned by another library as separating the costs into "borrowing" and "lending" might be too difficult to measure.
2. Include all tasks related to a circulation transaction:
 - a. Worksheet 1: Staff
 - i. Time to charge items
 - ii. Time to discharge items
 - iii. Time to reshelve materials

- iv. Time to handle holds, fines, communicate with patrons, deal with problems, etc.
 - v. Staff time to send/phone overdues, recalls, reminders, and other notices
 - vi. Staff time to process lost materials (but we will not include the fee paid to replace the item)
 - vii. Please list each staff member by initials or a local abbreviation.
 - viii. Record the total number of hours (using whole numbers, rather than a fraction of an hour) an individual spends on circulation tasks, and calculate the hourly rate, including benefits.
 - ix. Don't forget to include staff in reference, ILL, technical services, or other non-circulation areas if they have regular assignments in circulation or handle a circulation-related task.
 - x. If a staff member works in circulation and another department, use the *Staff Time Worksheet* to calculate the number of hours spent on circulation tasks.
- b. Worksheet 2: Network and Communications
 - i. Phone charges to contact patrons or other libraries for overdues, recalls, etc.
 - ii. Fax charges to contact patrons or other libraries.
 - iii. Include Internet or LAN charges if used by the circulation system, or if you email notices to your patrons.
 - iv. If the phone line is shared, estimate the percentage used by circulation.
 - c. Worksheet 3: Delivery
 - i. Cost to ship items (count only if sent via a means other than CCar)
 - ii. Cost to send overdues, recalls, and other notices
 - iii. Do not include CCar, but include all other delivery methods.
 - d. Worksheet 4: Photocopy Costs
 - i. Cost to photocopy notices, recalls, overdues, etc.
 - e. Worksheet 5: Supplies
 - i. Cost to purchase shipping materials (padded bags, envelopes, delivery forms) not covered by Ccar, toner, photocopy paper if not included in Worksheet 4, printer ribbons or ink cartridges, imprinted forms or envelopes, flyers and brochures, etc.
 - ii. Do not include the cost of general office supplies such as pencils, rubberbands, paperclips, other small supplies as the cost is minimal.
 - f. Worksheet 6: Equipment
 - i. Cost of computers, workstations, printers, barcode wands, fax machines, etc.
 - ii. If the equipment is shared with another department, estimate the percentage used for circulation.

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- iii. Be sure to include the expected lifespan as well as the age of the equipment. If the lifespan is not known, use 4 years.
 - iv. Include the cost of the circulation module portion of the integrated library system. If not known, please indicate on the worksheet.
3. It's important that everyone includes or excludes identical items/time/expenses.
4. When in doubt, please contact Mary Jackson: mary@arl.org, 202-296,2296 office phone, and 202 409 8705 cell phone!
5. The deadline for submitting the Excel file to Mary is **Friday, October 15, 2004**. If you can't make the deadline, contact Mary.

APPENDIX D: SUMMARY OF OTHER PROGRAMS AND OPTIONS FOR REIMBURSEMENT MODELS

The ARL proposal indicated that it would offer several models for determining reimbursements to libraries participating in the Connecticard program. In addition, ARL indicated it would undertake a modest review of comparable reimbursement plans as background for the recommendations. ARL recognizes that the selection of any reimbursement model is the responsibility of the State Library in consultation with the library community.

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There is consensus in the library community that Connecticard is underfunded. However, testimony at the Task Force's October 28, 2003 meeting indicated that some librarians feel that the current reimbursement model results in large net lenders shouldering a disproportionate burden relative to small net lenders or net borrowers. By implication, the large net lenders are incurring additional (and unnecessary, some assert) expenses to handle non-resident transactions.

This section reviews reciprocal borrowing programs from data provided by the State Library. This section also offers several reimbursement options as a means of understanding the strengths and weaknesses of different options and as an aid to help formulate a successful strategy for seeking additional funding for the program.

Reciprocal Borrowing Programs in Other States

Included in the background materials provided by the State Library was a summary of reciprocal borrowing programs in other states. The November 2003 summary was prepared by Joanne Turschmann and included data on 16 states.

Several states provide no reimbursements; others fund the replacement costs of lost materials or the costs to provide a borrower's card. Pennsylvania distributed about \$4 million to fund reimbursements (\$0.31 for loans within a district and \$0.46 for loans to residents outside their direct service area). Iowa appears to reimburse at \$0.30 per transaction and Indiana reimbursed 51 libraries \$0.31 per net loan. Some of these formulas differentiate between all loans and net loans.

The amounts listed are approximately double the rate of the current reimbursement for the Connecticard program. If Indiana's rate of \$0.31 was applied to the net loans and half of that rate (\$0.15) applied to all loans, the total appropriation needed to reimburse Connecticut libraries would be just over \$1 million. It

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is important to note that the reimbursement rates of the above-mentioned states are still only one-third of the median unit cost of a non-resident transaction.

The remainder of this section summarizes four reimbursement models. They are not presented in any order of priority or preference.

A. Actual Costs

This model recommends that each library be reimbursed its total, direct costs to fill all non-resident loans. This model would require all Connecticut libraries seeking reimbursement to complete a cost study on an annual or bi-annual basis. Having actual unit costs for each participant would eliminate the continuing worry and criticism that any reimbursement amount is less than the actual costs for most libraries. The major drawbacks are the total amount needed to reimburse all libraries and the variability of that amount from year to year. It also does not provide any incentive for libraries to streamline their operations, and thus reduce costs.

B. Number of Transactions

This model supports the assertion that libraries filling a significant number of transactions for non-residents spend more money than libraries that lend fewer items to non-residents. This model recognizes the total expenditures incurred by a library and bases the reimbursement rate on the number of non-resident transactions. For example, a library filling 1 – 1,000 transactions might be reimbursed \$1.00 per transaction, whereas a library filling 5,000 – 10,000 transactions would be reimbursed \$2.00 per transaction. This model encourages libraries to lend liberally to non-residents. One key drawback of this model is that it favors libraries with larger collections.

C. All Non-resident Loans

This model distributes available funds to all libraries based on the total number of transactions to non-residents. The model recognizes that libraries incur costs in providing the service and that funds should

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be shared equally. Reimbursing the same amount to all libraries means that many libraries will always receive less than their direct costs of filling non-resident transactions.

D. All Non-resident Loans and Net-plus Loans

This is the current reimbursement model, one that distributes a set amount per transaction to all libraries, and an additional, higher amount to those libraries that lend more than their patrons borrow from other libraries. The major benefit is that the reimbursement funding is understood by the library community and funding agencies and shares limited funds in a way that recognizes that some libraries incur more expenses than others because they lend more than their patrons borrow. The current reimbursement formula takes into account the "balance of trade" issue. On the other hand, some librarians have commented that the current model does not recognize the additional expenses born by large net lenders.