UNIVERSITY LIBRARY

STAFFING INVENTORY

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June 4, 1999

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EXECUTIVE SUMMARY

The charge of the group was to ascertain if it was possible to develop a staffing allocation model that could be applied to the Library. Two models were tested: the locally developed Indicator Model, and the Hayes' Library Cost Model. Upon review of the models, we concluded the following

- The Indicator Model can provide a general overview of staffing requirements.
- The Indicator Model can be used to allocate staff in some situations.
- The Hayes' Library Cost Model can be used to make comparisons between institutions.
- The Hayes' Library Cost Model has great difficulty in serving as a staffing model to allocate staff within the complexities of the UIUC Library.
- The Library should develop a cost-based staff model of its own if it wants to be able to determine staffing allocations that address the activities of all units.
- Any model used must be applied within the context of the Library's Strategic Plan.

INTRODUCTION

This report is the outgrowth of a long-term concern with the equitable allocation of staff within the University of Illinois at Urbana-Champaign (UIUC) Library[1]. In 1979, Renner and Clark published the results of a regression analysis of staffing patterns in the UIUC departmental libraries. The next step in examining staffing activities analyzed professional and staff activities in the UIUC science libraries (Beecher, Self, Stinson and Anderson; and Anstine, Davis, Hulsizer, and Williams). In the mid-1980's Clark and Mischo examined staffing patterns in departmental libraries using a regression model. This model was the precursor of the Indicator Model presented herein and developed by Bill Mischo. Concern continued for an allocation model that might produce an equitable means of allocating staff. Towards that end, in 1994, the UIUC Library administration invited Robert Hayes to present his Library Costing Model (1993) to the Library. During the next four years, the UIUC Library worked with other Committee on Institutional Cooperation (CIC) members in attempting to use the Hayes' Library Costing Model (LCM) in analyzing staffing within the CIC libraries. The first cooperative effort culminated in the CIC Technical Services Staff Survey. Unfortunately, inconsistencies in the reporting and the results of the survey led the CIC to abandon, at least for the time being, inter-institutional staffing analysis. None of these studies resulted in staff reallocation within the UIUC Library. However, the stimulus from the Technical Services Staff Survey was one factor that regenerated interest in finding an effective staff allocation model for the UIUC Library.

The objective of this staffing study has been to determine the appropriate staffing levels for ***all operational and administrative Library units*** within the constraints of available resources. The approach has been to look at two different models. The first model is

[1] Library-wide descriptive statistics for staffing have been collected since the early 1990's, and retrospectively gathered back to 1987. These statistics are available as the *Staffing Chronology*.

based upon a set of library and campus quantitative variables we have chosen to call the Indicator Model. The intent of the model is to provide an indication of immediate staffing allocations within individual units particularly when vacancies occur within the unit or when new resources become available. The second model is the Library Cost Model (LCM). It is, at the present time, best suited to predict aggregate staffing levels.

INDICATOR MODEL

The Indicator Model (Staff Survey Matrix Calculator) works on the very same principles as the Library Materials Collection Allocation Model. Only the variables have been changed to reflect the activities that correlate to staffing. The variables selected are those for which data were readily available from either the campus Office of Management Studies or the Library (Figure 1). Other variables that reflect aspects of staffing may also be relevant. A sub-group of the Library Executive Committee is collecting and reviewing possible additional variables for consideration.

Figure 1: Indicator Model Variables

Academic Factors	Library Factors
• FTE Faculty • Master's Degrees • Doctoral Degrees • Undergraduates • Instructional Units	• Presentations Made • 1997 Circulation Statistics • DRA Circulation Statistics (1998-1999) • Reserves • Reference Statistics • Reference Hours • Headcount (not used) • Hours Open • Volumes Added • Total Volumes • Uncataloged Items (not used) • Microforms • Cartographic Materials • Video Holdings • Music Holdings • Manuscripts • Archives • Periodicals Received • Monographic Cataloging • Serials Cataloging • Copy Cataloging • Web Transactions • Web Public Terminal • Binding • Special Cataloging • Special Processing

Not all the variables initially incorporated into the Indicator Model have been used to generate the current calculations for staffing. In some cases data were not uniformly available, e.g. "Headcount". Other variables appeared to be redundant and, therefore, biased staffing predictions towards a certain activity, e.g. "1997 Circulation Statistics" and "DRA Circulation Statistics (1998-1999)". Improved data collection may permit them, in the future, to be used as appropriate variables in the model.

Initial testing of the model revealed that area studies libraries consistently showed a large disparity between the actual staff and the predicted staff. In all cases, the model calculated much fewer staff than was currently allocated to the units. Recognizing that cataloging and processing within area studies units involve an extra work factor, two additional variables were added: "Special Cataloging" and "Special Processing". The data for these two variables are the cataloging figures and volumes added for each unit. These "double-counts" present more accurate activity levels for these units. It is anticipated that as the development of more thorough data collection takes place a more precise measure of these workloads will be achieved.

After identifying the variables, a weight between 0 and 35 was given to each category of staff (librarian, graduate assistant, staff, and student assistants) within each variable. The weighting is a representation of the amount of staff needed to perform work associated with a variable. While the individual weights can be adjusted when using the model at its web site (http://shiva.grainger.uiuc.edu/staffsurv/firststaff.asp), we have found that the weights that generated Table 1 most accurately reflects an appropriate predictive model within the parameters of the identified variables. ***Table 1 represents a best fit of the data in the model; it does not represent a recommendation by us for staffing reallocation***. As the model is refined, it is anticipated that its predictiveness will improve.

The model, like all quantitative models, does have some limitations. It is most successful at predicting staffing for departmental libraries while it is least successful at predicting the staffing allocations for area studies units. For departmental libraries, there is a wide range of highly quantifiable variables that reasonably predicts the staffing allocations. By contrast, area studies libraries' data, though obtainable, is far more difficult to collect, in major part, due to area study faculty, students, courses, and degrees being listed within subject departments. In addition, some area studies units carry out tasks such as invoice approval and other acquisition tasks not performed in departmental libraries. For an accurate representation of these libraries, data that are more complete will need to be collected. This will mean that double counting of data is necessary for both an area studies unit and a departmental library. The double count most likely benefits both units since the departmental library receives the benefit of the count for activities that may actually center in the area studies unit. An additional problem is the language factor. In particular, the Asian Library serves three distinct primary clientele, which require the appropriate language skills for each region. This need transcends a purely quantitative model. We recognize that several other unique situations exist that cannot be completely accounted for by the quantitative data. The following are illustrative of these situations. The Law Library with its accreditation requirements is another example of a unit where non-comparative quantitative factors come into play. The special handling and oversight

Table 1: Indicator Model – Comparison of Present and Proposed Staff

Library Dept.	Present Librarians	Suggested # of Librarians	Present GAs	Suggested # of GAs	Present Staff	Suggested # of Staff	Current Student Budget	Suggested Student Budget
ACES	2.00	2.00	0.25	0.82	3.50	2.64	$25,423	$18,766
Acquisitions	1.00	1.16	0.50	0.38	23.25	17.14	$15,635	$18,716
Africana	1.00	0.27	0.00	0.10	1.00	0.87	$0	$9,786
Afro-Americana	1.00	0.28	0.00	0.10	1.00	0.66	$0	$9,677
Applied Life	1.00	1.27	0.00	0.45	2.00	4.05	$11,868	$17,596
Architecture	2.00	1.90	1.00	0.65	3.00	3.06	$15,435	$18,727
Asian	4.00	0.99	1.25	0.34	3.75	3.81	$12,185	$24,179
Binding	0.00	0.00	0.00	0.40	5.00	7.74	$17,043	$13,582
Biology	1.00	1.58	0.00	0.54	4.00	3.31	$21,021	$19,225
Cataloging	4.50	12.21	4.00	3.91	29.75	26.13	$22,205	$21,940
Chemistry	1.00	1.84	0.50	0.63	2.50	3.04	$10,673	$18,277
Circulation	1.00	1.13	1.50	0.84	25.00	18.09	$199,535	$118,289
City Planning	1.00	0.49	0.25	0.19	1.00	1.00	$17,880	$8,783
Classics	1.00	0.33	0.00	0.14	1.00	0.98	$12,572	$10,571
Commerce	3.00	3.55	2.00	1.22	4.00	9.80	$41,555	$41,168
Communications	1.00	0.92	0.00	0.33	2.00	2.10	$16,482	$12,127
Documents	3.50	2.04	0.75	0.68	2.50	5.90	$14,600	$11,400
Education	4.00	4.01	3.00	1.38	6.00	8.62	$43,415	$49,486
Engineering	5.75	9.66	3.00	3.32	5.00	12.86	$73,860	$88,367
English	2.00	1.01	0.00	0.37	2.00	2.18	$12,805	$16,560
Geology	1.00	0.71	0.00	0.26	2.00	1.83	$15,317	$13,245
History	1.00	0.92	0.00	0.34	3.00	2.11	$12,805	$15,877
Ill Historical Survey	1.00	0.58	1.00	0.20	0.00	0.91	$0	$5,845
IUB	0.00	0.00	0.00	0.02	1.00	0.26	$9,080	$4,286
Latin American	1.00	0.53	1.00	0.18	1.00	0.20	$4,110	$2,869
Law	3.73	2.13	0.75	0.72	10.00	7.39	$35,015	$41,405
LIR	1.00	0.54	0.00	0.20	1.00	1.55	$15,250	$8,660
LIS	1.00	0.69	0.25	0.25	2.00	1.71	$14,200	$9,621
Map & Geography	1.50	1.74	0.00	0.59	2.00	2.48	$17,500	$13,745
Math	1.00	1.16	0.50	0.41	2.00	2.58	$17,880	$19,829
Modern Languages	3.00	1.32	0.25	0.46	2.50	1.98	$14,433	$13,029
Music	4.00	3.67	0.00	0.67	7.50	9.71	$36,900	$35,638
Nat. History Survey	1.00	0.33	0.00	0.12	4.00	0.77	$0	$5,966
Newspaper	1.00	1.38	0.00	0.48	2.00	2.37	$12,385	$11,152
Physics	1.00	1.11	0.00	0.38	2.00	1.68	$15,317	$11,393
Rare Book	3.00	0.70	0.00	0.25	3.00	1.82	$13,345	$16,538
Reference	6.75	6.79	3.25	2.20	2.00	4.03	$8,345	$27,523
Slavic	4.50	1.86	0.70	0.62	8.50	3.80	$10,480	$10,076
Sousa Archives	1.00	1.41	0.00	0.45	0.00	0.88	$0	$4,920
Undergraduate	4.00	8.58	3.50	3.09	12.50	13.78	$102,890	$111,571
University Archives	2.00	1.94	0.25	0.64	1.00	2.27	$4,825	$11,565
University High	1.00	1.07	0.50	0.36	1.00	1.62	$0	$7,814
Vet. Med.	1.50	1.15	0.25	0.40	2.00	1.31	$15,085	$11,606
Women's Studies	1.00	0.34	0.00	0.12	1.00	0.24	$4,980	$2,940

NB: Acquisitions and Cataloging have not been reconfigured into their new alignments. With the start of FY00 these changes will be reflected in the model.

of the materials in the Rare Book and Special Collections Library requires levels of staffing that cannot be accounted for in the model. Finally, the model is unable to address staffing within Administration, Security, and Systems.

Given these caveats, the Indicator Model is still useful in the review of staffing patterns within the UIUC Library. It is best suited to predict the following situations.

- The general overview of staffing requirements
- The review of vacancies within a unit.
- The review of staffing ratios within a unit.
- The allocation of new dollars for positions.

When applying the model when new dollars are available, the projected number of positions can be added to the model totals. The model will then determine where most appropriately the positions should be allocated. In budget planning, the number of positions requested can be determined. The model is then run to determine which specific positions should be requested. Although the Indicator Model can be used in budget planning, it should not be used for strategic planning

COST MODEL

The basis of any cost model is to provide a standard model to identify workloads such as reference questions answered and books cataloged. Once workloads are identified, the number and type of staff are calculated to perform each activity. Finally, costs are attributed to each activity. In contrast to a regression model, the staff needed is based upon activities performed (outputs) rather than the allocation of staff within a finite prescribed number of staff. It is thus particularly useful in strategic and budget planning. The cost model that was reviewed during the staffing inventory was that developed by Robert Hayes. The essence of *LCM: Library Cost Model* (1993) provides a method for estimating staff, materials, and costs needed to carryout library operations and services. It is able to look at individual units within the library and, based on the workload for that unit compared with standard workload factors (variables) supplied by Hayes from real libraries, projects the level of staffing that would be appropriate, given a reported workload. The Library Cost Model was examined both as an **aggregate data model** comparing staffing at CIC institutions and as a **predictive model** to examine individual institution, UIUC, and its internal components.

For the staffing inventory only Library Cost Model staffing variables were used. The major variables of the Library Cost Model for staffing are provided in Figure 2. Although the Library Cost Model refers to costs and collects cost data, none of it links to staff predictions. For example, if the cost to catalog a book is increased it will affect the budget predictions in the model, but it will have no impact on the overall number of staff. For this obvious reason, the Library Cost Model is not a staff predictive cost model.

Figure 2: Library Cost Model Staffing Variables

Academic Factors	Workloads
• Faculty • Undergraduates • Graduates • Number of Teaching Departments	• Faculty • Holdings • Volumes Added (Gross) • Monographic Volumes Purchased • Current Serial Titles Purchased • Current Serial Titles Not Purchased • Interlibrary Loans • Interlibrary Borrows • Initial Circulation

One important dimension of the model is the workload values (Figure 3). Each functional process has sub-categories to enhance the precision of the weights. Although these weights can be adjusted within the context of a general model, they did not prove useful in enhancing the model for the UIUC Library. Their potential is in a model in which adjustments can be made to individual units based upon rational explanations for adjustments to the weights. In building a staff model for the UIUC Library, a set of workload values similar to these will greatly improve the quality of the model.

Figure 3: Hayes Library Cost Model Workload Values

Function Process	Staff Category
Technical Services	Professional
Preservation	Clerical
Information Services	Hourly
Overhead Invoice	

Aggregate Model

As an aggregate model, the Library Cost Model is very useful for comparisons between institutions. Since the model is based upon real data gathered from the Association of Research Libraries and the Association of College and Research Libraries, and is presented in an aggregate, comparisons can be made with a relatively strong level of confidence. It, therefore, can be used as a tool in general planning, particularly concerning campus budget requests.

As can be seen in Table 2, the UIUC Library is understaffed in comparison to most of its peers in the CIC. Those libraries that appear to be greatly over-staffed may have factors associated with their staffing levels that are not explained by quantitative data. Certainly some of the size of Pennsylvania State's library is do to its branch libraries. Curiously, decentralization and branches appear to have a minimal impact upon the model. Parameter variables such as ratio of books circulated to in-house use that are included in

the Library Cost Model were not used because of the lack of availability of reliable data from all of the institutions.

Table 2: Predicted CIC Staffing Using Hayes' Library Cost Model

	LIBRARIANS		STAFF		STUDENTS		TOTAL STAFF		
LIBRARY	FY1998	HAYES	FY1998	HAYES	FY1998	HAYES	FY1998	HAYES	DIFF
Chicago	69.00	128.61	196.00	168.94	71.00	56.36	336.00	353.91	17.91
Illinois-Chicago	71.00	73.78	164.00	101.86	38.00	37.60	273.00	213.23	(59.77)
Illinois-Urbana	**177.00**	**202.73**	**251.00**	**259.57**	**115.00**	**108.00**	**543.00**	**570.30**	**27.30**
Indiana	141.00	118.01	204.00	207.09	154.00	125.91	499.00	451.01	(47.99)
Iowa	93.00	86.08	125.00	140.72	80.00	50.51	298.00	277.31	(20.69)
Michigan	145.00	178.97	304.00	209.40	145.00	60.43	594.00	448.80	(145.20)
Michigan State	57.00	92.39	112.00	126.19	104.00	45.76	273.00	264.34	(8.66)
Minnesota	106.00	114.46	192.00	214.47	133.00	93.88	431.00	422.81	(8.19)
Northwestern	113.00	96.07	136.00	123.70	102.00	34.78	351.00	254.55	(96.45)
Ohio State	108.00	147.29	181.00	198.07	149.00	76.32	438.00	421.68	(16.32)
Pennsylvania State	142.00	134.87	345.00	181.13	88.00	69.38	575.00	385.39	(189.61)
Purdue	63.00	53.98	149.00	70.98	52.00	26.40	264.00	151.37	(122.63)
Wisconsin	151.00	129.06	187.00	202.94	163.00	101.64	501.00	433.65	(67.35)

Data from ARL FY1998. Initial circulation unavailable for Illinois-Urbana, Iowa, Michigan State, and Northwestern. The figure for these institutions was calculated at 64%, the average of the 9 institutions that did report initial circulation.

Because some of the variations seemed particularly great, ratios were run between total staff of each institution and each of the Hayes variables to determine if the relationship between staff and the variables reflected what the Hayes model predicted (see Appendix). The ARL ratios did reflect the projected staffing variations. The UIUC Library ranked at the bottom or near the bottom for all of the ratios. In contrast, and as is to be expected, those libraries that showed the highest level of over-staffing (Penn State, Michigan, Purdue, and Northwestern) according to the Hayes model had the highest level of staffing ratios for the individual variables.

Predictive Internal Allocation Model

While the Library Cost Model is useful in providing predictive aggregate information, it is far less satisfactory as a predictive internal allocation model. It, in fact, predicts a greater need for staff when the units are calculated within a predictive internal model than with the aggregate model. Acquisitions, Cataloging, and Circulation generate particular high and improbable numbers of staff. However, even when these units are removed the model calculates a larger number than the aggregate model. The major problem is that the suggested workload factors are generic factors and may or may not take into consideration activities that individual libraries do at the UIUC. This is particularly true in relationship to automation, which is not accounted for in the model. In addition, the

number of variables is limited; for example, size of faculty is the only variable that relates directly to the user population. Collections are accounted for purely within the realm of paper format monographs and serials. Units that have a primary focus towards other formats, e.g. maps, are served poorly by the model. Another limitation is that the model only directly predicts two-thirds of activities of a library. The model does not directly account for activities such as meeting times, supervisory work, and administration. To compensate for these omissions, an indirect increase of staff by one-third is made to provide the total staff figures.

Since it was obvious that the Library Cost Model was not adequate for our library, we attempted to determine the extent of alteration to the Library Cost Model that might be necessary if we were to apply it with any confidence. Toward that end we surveyed Bill Maher in the University Archives, Alvan Bregman in Technical Services, Stephen Smith in Copy Cataloging, Nancy O'Brien in Education and Social Sciences, Marty Friedman in History, Tina Chrzastowski in Chemistry, and Bob Burger in Slavic. The purpose of the survey was to determine additional workload factors that would be necessary to apply the Library Cost Model, as well as to get general feedback to the possible application of LCM. The responses that we received confirmed our suspicions about the inadequacy of the Library Cost Model. The model should not be used for the internal allocation of staffing.

TOWARDS A NEW MODEL

Our work on the staffing inventory has pointed out primary and ancillary problems that we would encounter in the application of any staffing model. The best way to explain these difficulties is to present certain assumptions that need to be applied to any model to insure confidence and a modicum of accuracy.

Assumptions of Costing Models And The Rational Allocation of Staff

These assumptions are central because they are the underlying basis for the credibility of any staffing study. Without the information detailed below, any staff/costing study is little more than guesswork.

1. A staffing model must begin with a strategic plan.

2. A cost based staffing model must be the basis for budgetary requests.

3. Data for all staff models should be averaged over a three-year period to minimize single year variations that may not be indicative of long-term patterns.

4. Levels of service and processing must be defined before a truly cost-based predictive model can be established.

5. All units must be incorporated into the model. The method of data collection must be consistent for all units. Variations must be explained. The Library Cost Model has shown that it is possible to incorporate special sub-sets into a cost-staffing model to enhance the precision of the model.

6. A complete listing of all staff is readily available and is kept up to date. This list would contain the individual's unit assignment, the percentage time of the appointment, the type of position held (faculty, LTA, LCII, etc.), the number of persons supervised, and some type of productivity rating (e.g. low, medium, high), based on quantitative factors and supervisory assessment.

7. The types of tasks carried out by each individual staff member. This information is contained in a properly constructed job description.

8. A complete inventory of the types of tasks carried out in each library unit. This inventory would enable a matching to take place between individuals and tasks performed and be central to any productivity measures. These tasks must be standardized, even if the task is carried out in only one unit.

9. Costs must be linked to staff through workloads per FTE.

10. An evaluation mechanism relating to the appropriateness of certain tasks being carried out in individual libraries. This is to prevent the multiplication of unnecessary tasks and is closely connected with the previous assumption (no. 3).

11. An evaluative mechanism relating to the productivity expected for each task is established.

12. A set of objectives exists relating to what the Library wants to achieve. On a macro scale, this can be set forth in the Library's Strategic Plan. On a micro scale such objectives can be set for each library and should be directly related to authorized tasks.

13. An analysis of the entire system has been performed in order to determine the optimum set of processes that will achieve set objectives and to alleviate duplication of effort in individual units.

14. A system accountability and performance assessment is in place in order to determine levels of productivity for both individuals and units, based on identified tasks and the above analysis.

15. If a unit is to exist, it must have a minimal level of staff. This is a policy decision that can not be addressed directly by a staffing model.

A cost model developed using the recommendations above can be used to predict and allocate staff internally.

The Next Step

Anyone who now works in the UIUC Library will readily acknowledge that these assumptions are not tenable at the present time. Several recommendations from the Strategic Plan point toward the correction of some of these deficiencies.

We have just completed our first strategic plan. It seems that we all need to take this plan seriously, improve it, but most importantly infuse it into our daily decision making. For staffing this means, that on a macro scale we must make staffing decisions always based on our strategic goals. If one of our strategic goals is to improve access for items we purchased (an obvious, but often overlooked strategic goal), and then the assumptions stated above must be realized. We must know how many people work toward achieving this objective, what their productivity is, whether their work processes are arranged in the most efficient and effective manner, and whether there are enough of them to process those items that we acquire. In short, we must look at demonstrated need against the ever-present backdrop of our strategic goals. Two other things that must keep in mind are plans for the future, and promises and commitments made. That is, if we know that someone is retiring in several years, we should try to plan for an orderly bridging in that position. There must be a way to keep track of these in the overall context of staffing planning.

We believe that it would take at least two years (if not more) to put such a staffing plan in place (with the assumptions stated above all realized). This investment is essential and must move towards a fully developed cost-based staffing model. In the mean time, it is possible to use the Indicator Model as previously defined. However, it is incumbent on the Executive Committee and the Library Administration to decide themselves how staff placements will achieve our strategic goals, where the demonstrated needs are consonant those goals, and keep in mind promises and commitments made, as well as the existing "demography" of our staff.

REFERENCES

Anstine, Francesca A. Elisabeth B. Davis, Bernice Hulsizer, and Mitsuko Williams. (1982). Use of Random Alarm Mechanisms for Analyzing Professional and Support Staff Activities in Science Libraries – Part 2: Data Analysis and Discussion. *Library Research* 4, 147-161

Beecher, John W., Phyllis C. Self, E. Ray Stinson, and Nancy D. Anderson. (1982). Use of Random Alarm Mechanisms for Analyzing Professional and Support Staff Activities in Science Libraries – Part 1: Methodology. *Library Research* 4, 137-146.

Hayes, Robert. (1993). *LCM: The Library Costing Model.* Sherman Oaks, CA: Becker and Hayes.

Renner, Charlene and Barton M. Clark. (1979). Professional and Nonprofessional Staffing Patterns in Departmental Libraries. *Library Research* 1, 153-170.

APPENDIX

Ratio of Total Library Staff in CIC Libraries to Hayes' Library Cost Model Variables

LIBRARY	Volumes Held	LIBRARY	Volumes Added Gross	LIBRARY	Mono Purchased	LIBRARY	Total Current Serials
Illinois-Chicago	.0001372	Purdue	.0060233	Purdue	.018179	Illinois-Chicago	.017570
Pennsylvania State	.0001350	Illinois-Chicago	.0052221	Minnesota	.011348	Pennsylvania State	.016066
Purdue	.0001158	Wisconsin	.0047126	Illinois-Chicago	.011308	Purdue	.013876
Northwestern	.0000888	Michigan	.0042021	Indiana	.010369	Ohio State	.012160
Wisconsin	.0000849	Northwestern	.0039148	Wisconsin	.0090656	Indiana	.011799
Ohio State	.0000846	Pennsylvania State	.0037953	Ohio State	.007616	Wisconsin	.011783
Michigan	.0000840	Ohio State	.0037953	Michigan	.0066338	Michigan State	.009996
Indiana	.0000826	**Illinois-Urbana**	**.0035422**	Michigan State	.0065660	Chicago	.009414
Minnesota	.0000768	Indiana	.0033301	**Illinois-Urbana**	**.0060681**	Minnesota	.008172
Iowa	.0000759	Minnesota	.0030405	Iowa	.005390	Northwestern	.008773
Michigan State	.0000652	Michigan State	.0025211	Chicago	.004372	Michigan	.008574
Illinois-Urbana	**.000592**	Iowa	.0022586	Northwestern	No data	Iowa	.006369
Chicago	.0000536	Chicago	.0021019	Pennsylvania State	No data	**Illinois-Urbana**	**.005980**

LIBRARY	Total Lending	LIBRARY	Total Borrows	LIBRARY	Total Circ.
Purdue	.01255	Minnesota	.024177	Northwestern	.0009574
Pennsylvania State	.01135	Michigan	.022261	Pennsylvania State	.0007525
Chicago	.0099762	Pennsylvania State	.020541	Michigan	.0007266
Northwestern	.0097179	Wisconsin	.018204	Purdue	.005617
Michigan	.0096257	Chicago	.017167	Illinois-Chicago	.0005592
Indiana	.0085458	Indiana	.016042	Iowa	.0005039
Illinois-Urbana	**.0082404**	Michigan State	.013982	Minnesota	.0004919
Michigan State	.0080958	Iowa	.013971	Wisconsin	.0005575
Iowa	.0050792	Purdue	.013764	Chicago	.0004635
Wisconsin	.0049753	Northwestern	.012713	Michigan State	.0004420
Illinois-Chicago	.0046667	**Illinois-Urbana**	**.009798**	**Illinois-Urbana**	**.0004007**
Ohio State	.0044804	Ohio State	.005229	Indiana	.0003155
Minnesota	.018153	Illinois-Chicago	.004200	Ohio State	.0026726

Data are FY1998 reported by ARL. Total Serials is used instead of Current Purchased Serials and Current Serials Not Purchased, and Total Circulation is used instead of Initial Circulation because of incomplete reporting by several CIC member libraries.

Table 1a: Indicator Model – Comparison of Present and Proposed Staff (Version 2)

(This version is an update run after the submission of the report)

Library Dept.	Present Librarians	Suggested # of Librarians	Present GAs	Suggested # of GAs	Present Staff	Suggested # of Staff	Current Student Budget	Suggested Student Budget
ACES	2.00	2.299	0.25	.812	4.50	2.804	$25,423	$14,768
Acquisitions	1.00	1.063	0.50	0.371	23.25	19.265	$15,635	$15,552
Africana	1.00	1.414	0.00	0.187	1.00	0.817	$0	$3,667
Afro-Americana	1.00	0.288	0.00	0.103	1.00	0.260	$0	$3,106
Applied Life	1.00	1.214	0.00	0.455	2.00	4.067	$11,868	$18,716
Architecture	2.00	1.785	1.00	0.651	3.00	3.329	$15,435	$18,203
Asian	4.00	4.009	1.25	0.619	3.75	3.885	$12,185	$13,281
Binding	0.00	0.000	0.00	0.000	5.00	4.011	$17,043	$16,646
Biology	1.00	1.475	0.00	0.531	4.00	3.074	$21,021	$13,836
Cataloging	4.50	8.055	4.00	3.977	29.75	29.971	$22,205	$23,840
Chemistry	1.00	1.697	0.50	0.611	2.50	3.106	$10,673	$16,159
Circulation	1.00	1.200	1.50	1.113	25.00	20.560	$199,535	$203,685
City Planning	1.00	0.461	0.25	0.185	1.00	1.009	$17,880	$8,550
Classics	1.00	0.309	0.00	0.134	1.00	0.894	$12,572	$9,128
Commerce	3.00	3.271	2.00	1.192	4.00	9.342	$41,555	$44,427
Communications	1.00	0.854	0.00	0.315	2.00	1.952	$16,482	$11,427
Documents	3.50	1.674	0.75	0.730	2.50	3.617	$14,600	$10,866
Education	4.00	3.818	3.00	1.391	6.00	8.722	$43,415	$47,142
Engineering	6.25	8.665	3.00	3.144	5.50	12.284	$73,860	$78,290
English	2.00	0.935	0.00	0.358	2.00	2.435	$12,805	$17,181
Geology	1.00	0.682	0.00	0.258	2.00	1.665	$15,317	$9,765
History	1.00	0.850	0.00	0.333	3.00	2.523	$12,805	$16,395
Ill Historical Survey	1.00	0.546	1.00	0.197	0.00	0.921	$0	$4,602
IUB	0.00	0.004	0.00	0.020	1.00	0.215	$9,080	$4,780
Latin American	1.00	2.343	1.00	0.308	1.00	1.098	$4,110	$3,438
Law	3.73	1.928	0.75	0.696	10.00	4.264	$35,015	$18,019
LIR	1.00	0.503	0.00	0.196	1.00	1.418	$15,250	$8,735
LIS	1.00	0.885	0.25	0.328	2.00	1.617	$14,200	$8,730
Map & Geography	1.50	1.628	0.00	0.584	2.00	2.632	$17,500	$16,757
Math	1.00	1.082	0.50	0.407	2.00	2.771	$17,880	$17,927
Modern Languages	3.00	1.247	0.25	0.455	2.50	2.294	$14,433	$12,395
Music	4.00	4.003	0.00	0.679	7.50	7.470	$36,900	$40,358
Nat. History Survey	1.00	0.333	0.00	0.128	4.00	0.763	$0	$4,465
Newspaper	1.00	1.082	0.00	0.401	2.00	2.063	$12,385	$12,321
Physics	1.00	1.037	0.00	0.374	2.00	1.819	$15,317	$10,030
Rare Book	3.00	1.139	0.00	0.284	3.00	1.435	$13,345	$10,863
Reference	6.75	6.935	3.25	2.377	2.00	7.455	$8,345	$18,262
Slavic	4.50	4.400	0.70	0.904	8.50	4.598	$10,480	$8,978
Sousa Archives	1.00	1.171	0.00	0.383	0.00	0.842	$0	$4,119
Undergraduate	4.00	7.235	3.50	2.762	12.50	13.662	$102,890	$117,751
University Archives	2.00	2.102	0.25	0.397	1.00	1.383	$4,825	$5,976
University High	1.00	0.853	0.50	0.310	1.00	1.426	$0	$8,150
Vet. Med.	1.50	1.061	0.25	0.390	2.00	1.615	$15,085	$10,291
Women's Studies	1.00	0.694	0.00	0.148	1.00	0.396	$4,980	$2,758

NB: Acquisitions and Cataloging have not been reconfigured into their new alignments. With the start of FY00 these changes will be reflected in the model.